FCC RF Test Report

APPLICANT	:	Espressif Systems (Shanghai) Co.,Ltd.
EQUIPMENT	:	2.4GHz Wi-Fi & BT IoT Module
BRAND NAME	:	ESPRESSIF
MODEL NAME	:	ESP32-S3-WROOM-2
FCC ID	:	2AC7Z-ESPS3WROOM2
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System
TEST DATE(S)	:	Jan. 11, 2022 ~ Mar. 05, 2022

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alexwang

Approved by: Alex Wang / Manager

ACCREDITED
Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1D1703B	Rev. 01	Initial issue of report	Mar. 25, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Report Only	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.00 dB at 2389.950 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.75 dB at 0.161 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-
Remark: Not required means after assessing, test items are not necessary to carry out.					

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Espressif Systems (Shanghai) Co.,Ltd.
Suite 204, Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China

1.2 Manufacturer

Espressif Systems (Shanghai) Co.,Ltd.
Suite 204, Block 2, 690 Bibo Road, Zhang Jiang Hi-Tech Park, Shanghai, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	2.4GHz Wi-Fi & BT IoT Module
Brand Name	ESPRESSIF
Model Name	ESP32-S3-WROOM-2
FCC ID	2AC7Z-ESPS3WROOM2
HW Version	V1.2
SW Version	V1.1.3.0
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to antenna	802.11b : 23.36dBm (0.2168 W) 802.11g : 25.54dBm (0.3581 W) 802.11n HT20 : 25.34dBm (0.3420 W) 802.11n HT40 : 25.24dBm (0.3342 W)
Antenna Type / Gain	PCB Antenna type with gain 3.26dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-KS 03CH02-KS 03CH05-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-KS	AUDIX	E3	6.2009-8-24a
2.	03CH05-KS	AUDIX	E3	6.2009-8-24al
3.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

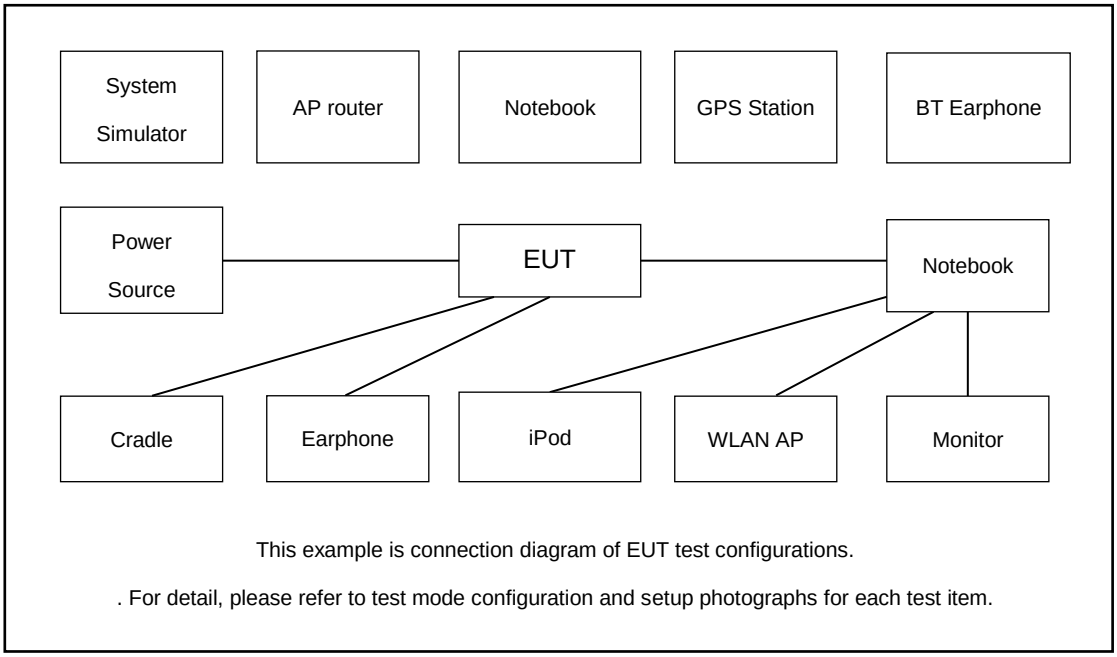
2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11b	**1 Mbps**
802.11g	**6 Mbps**
802.11n HT20	**MCS0**
802.11n HT40	**MCS0**

Test Cases	
AC Conducted Emission	Mode 1 :Bluetooth +WLAN(2.4GHz)

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	V130-15IKB005	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss

Following shows an offset computation example with cable loss 5.30 dB.

Offset (dB) = RF cable loss (dB).

= 5.30 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

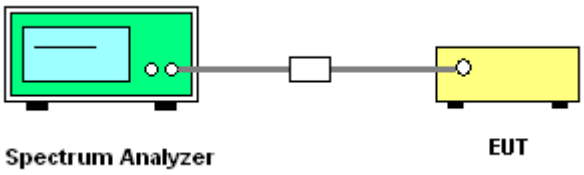
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.8
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

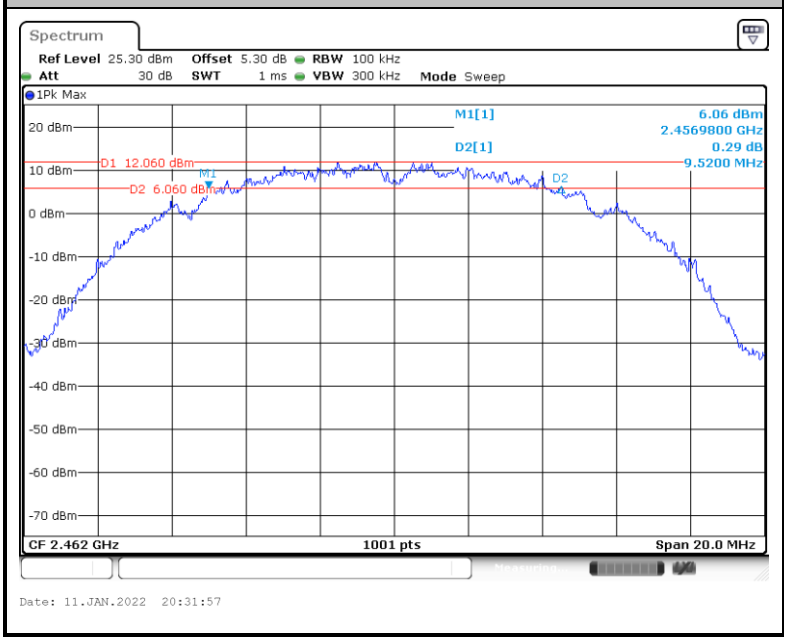
3.1.4 Test Setup



3.1.5 Test Result of 6dB Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth



Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

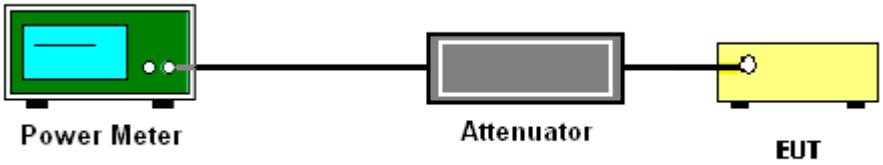
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2013 clause 11.9.1.3 PKPM1 Peak power meter
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

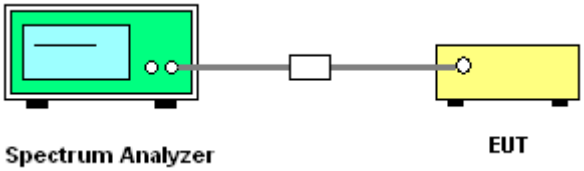
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure of ANSI C63.10-2013 clause 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

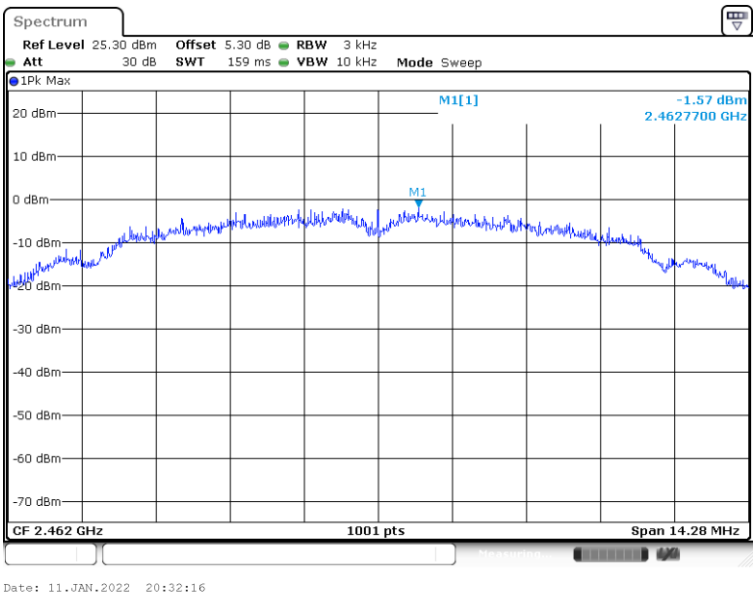
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

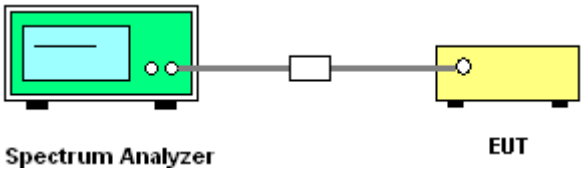
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.13
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



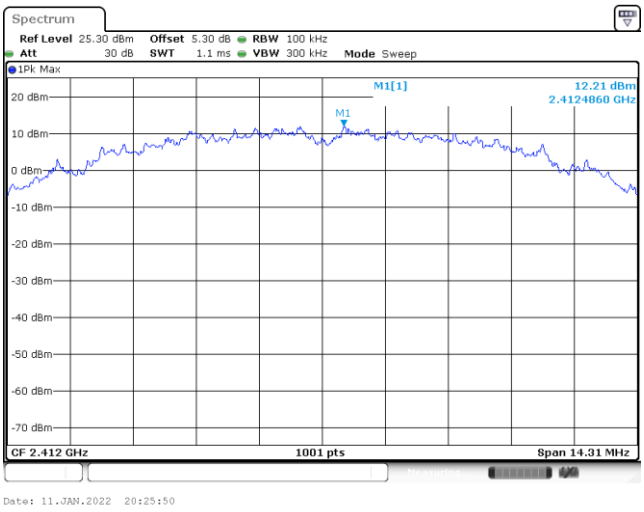
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Jacob Zhang	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

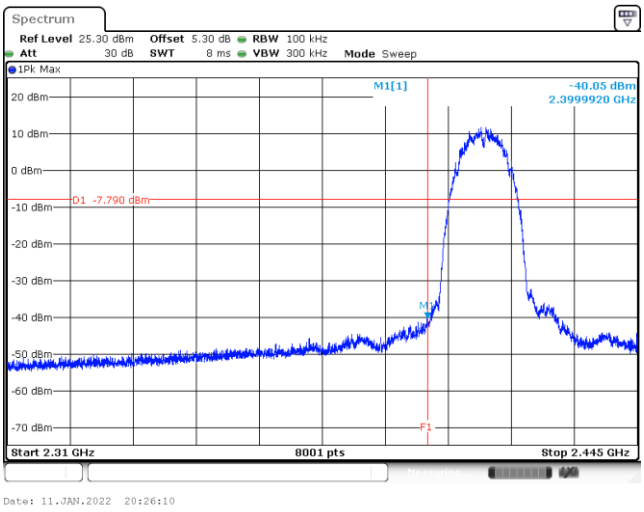
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	**Test Channel :**	01

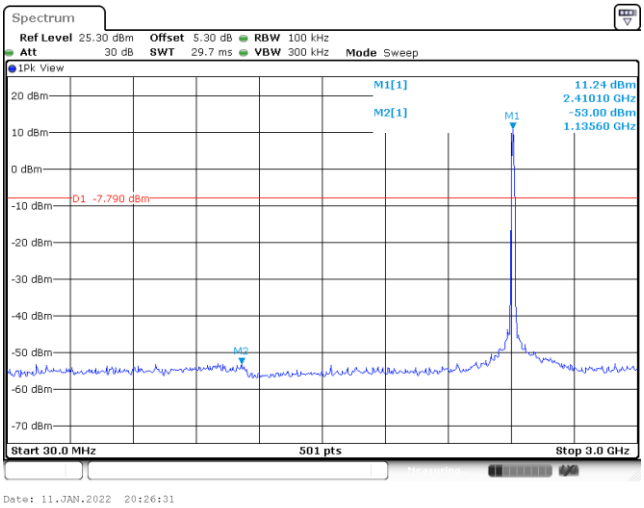
100kHz PSD reference Level



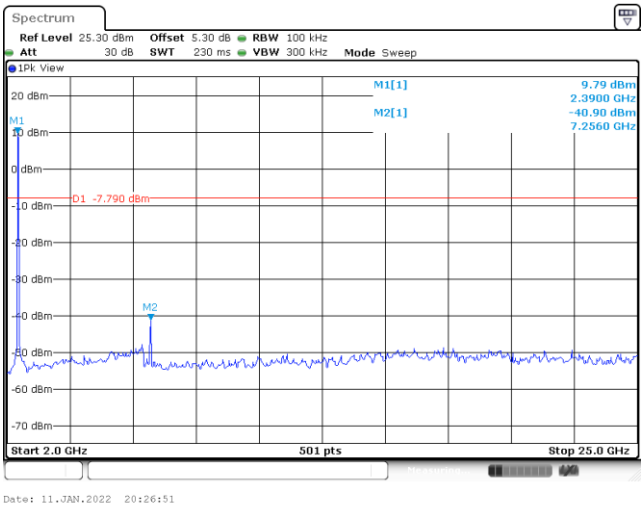
Channel Plot



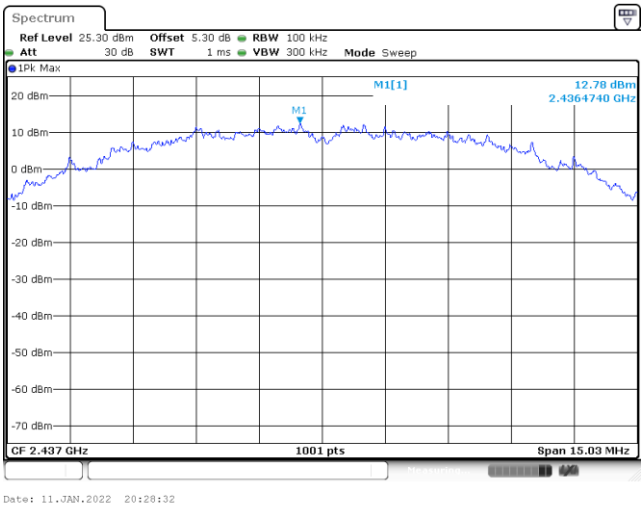
Spurious Emission 30MHz~3GHz

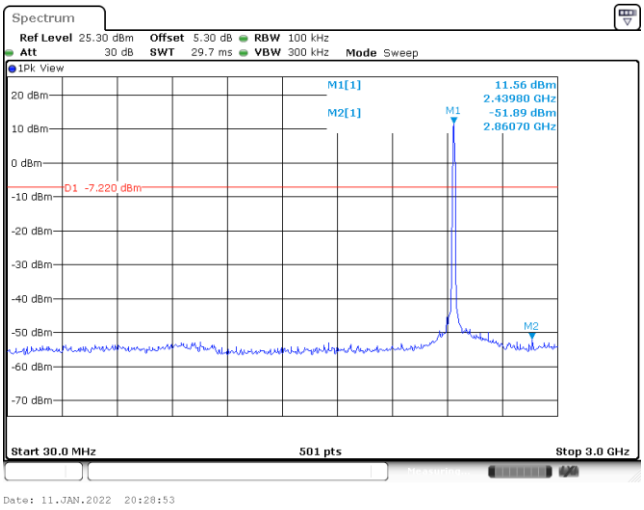
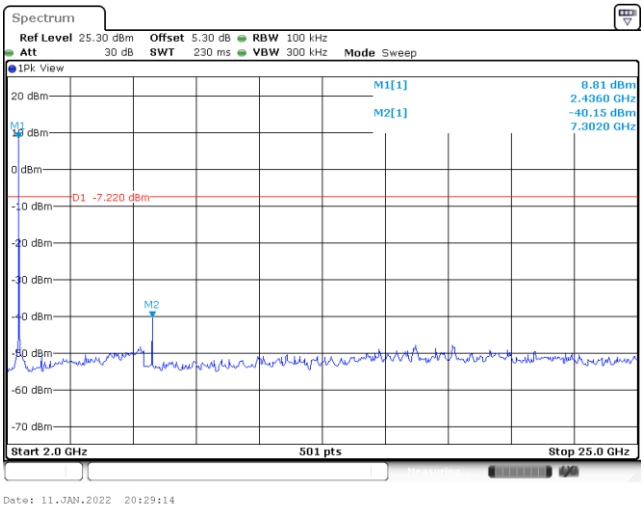


Spurious Emission 2GHz~25GHz

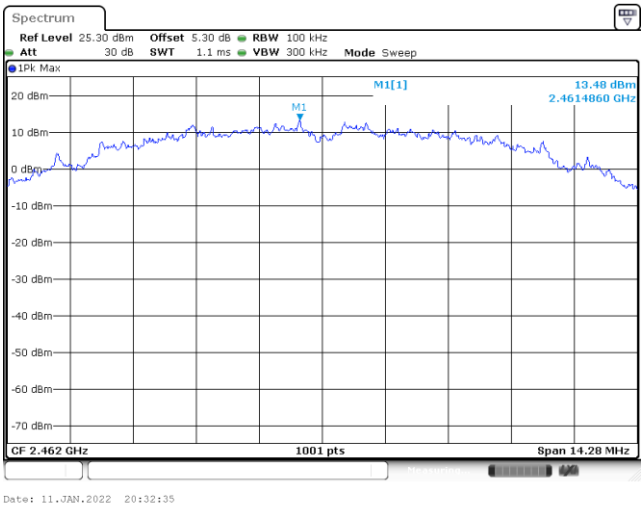
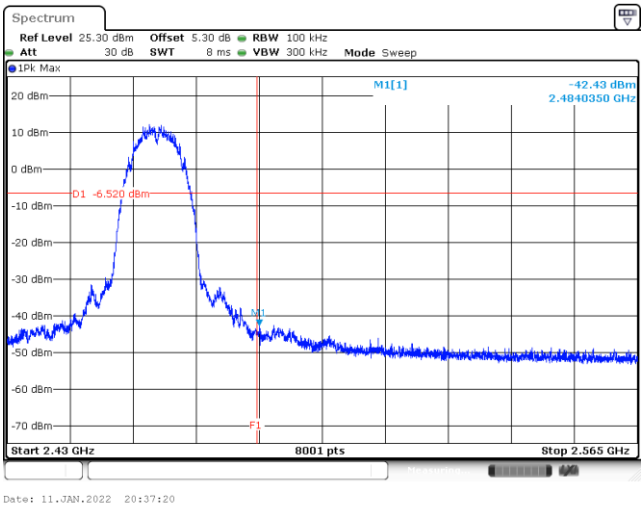
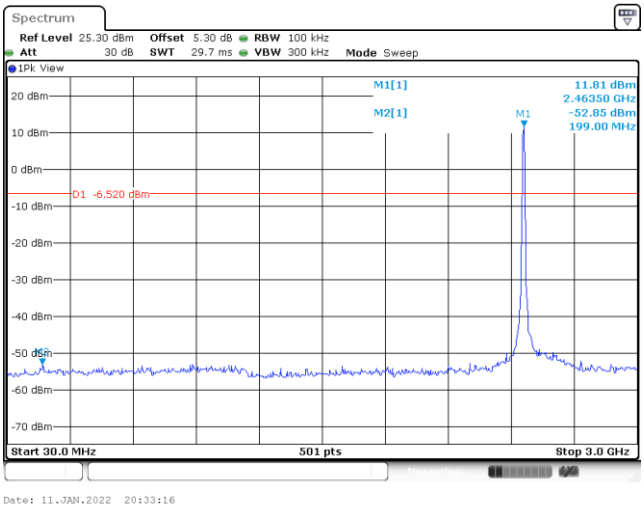
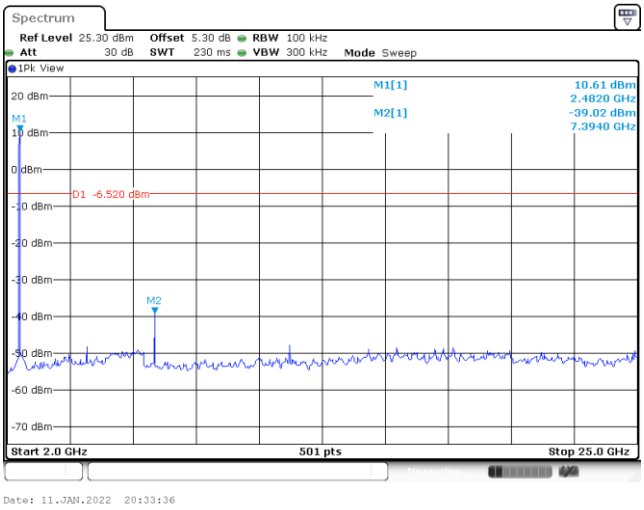


Test Mode :	802.11b	Test Channel :	06

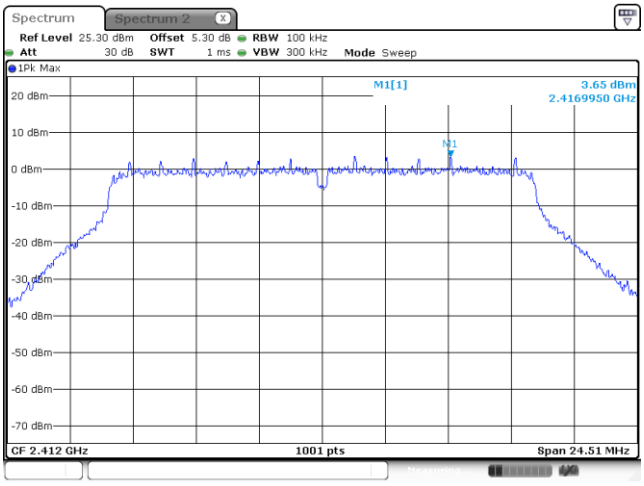
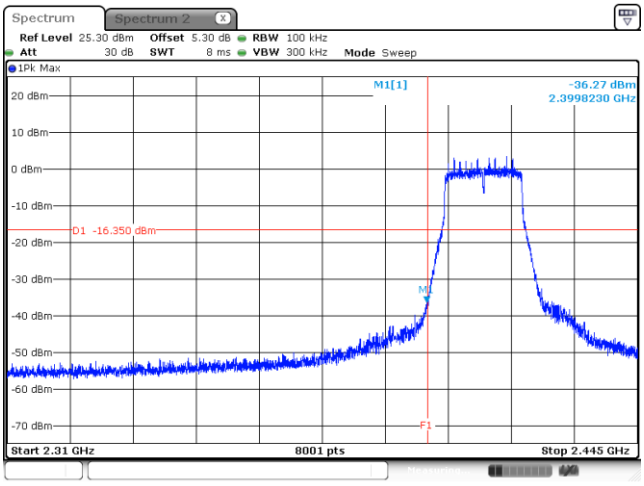
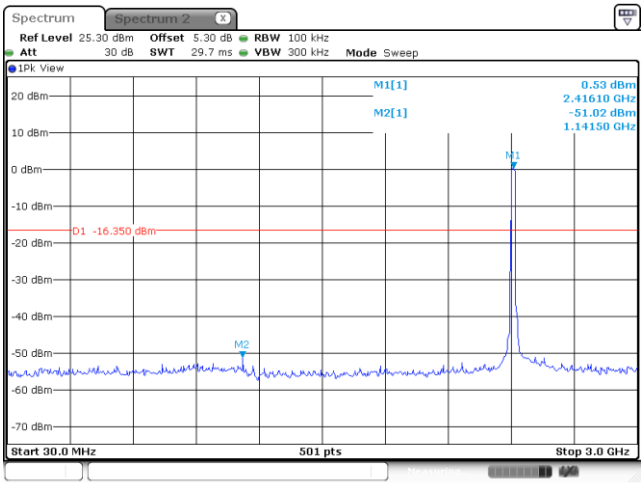
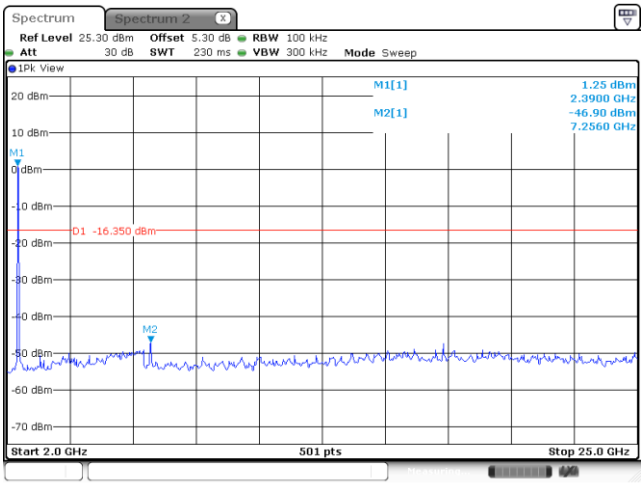
100kHz PSD reference Level	Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

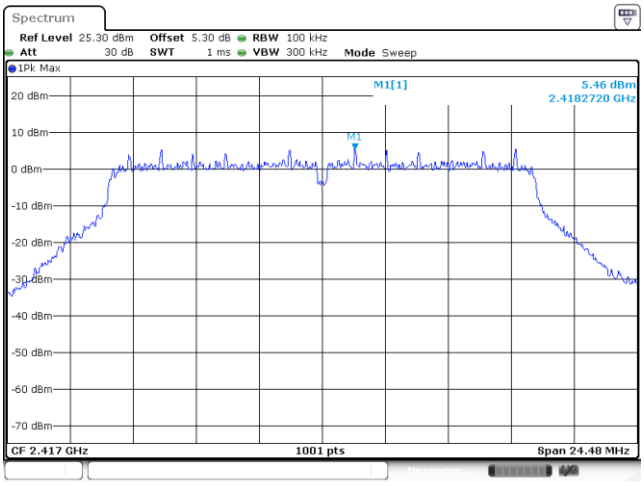
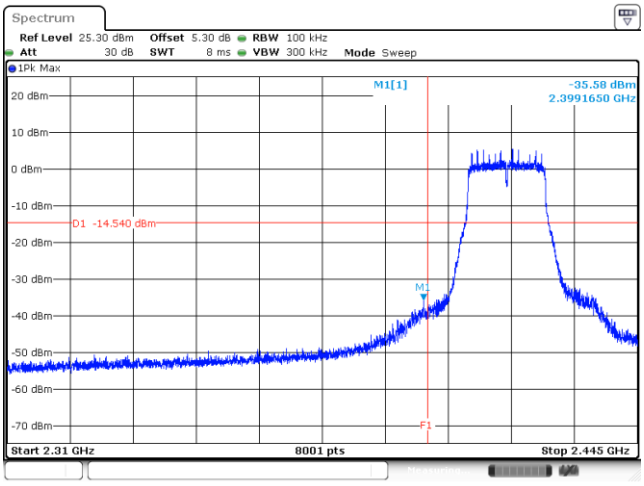
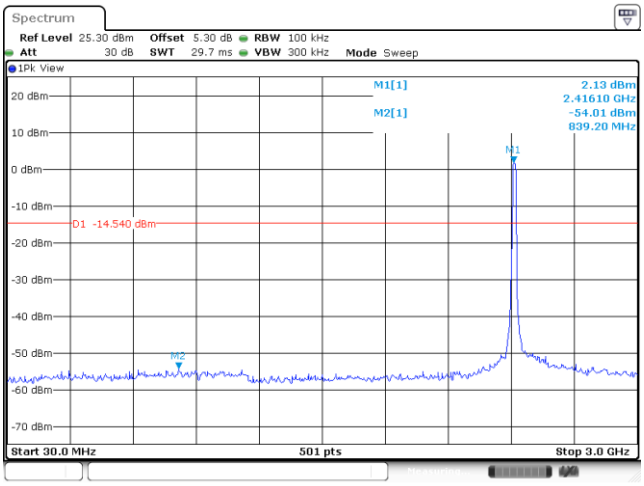
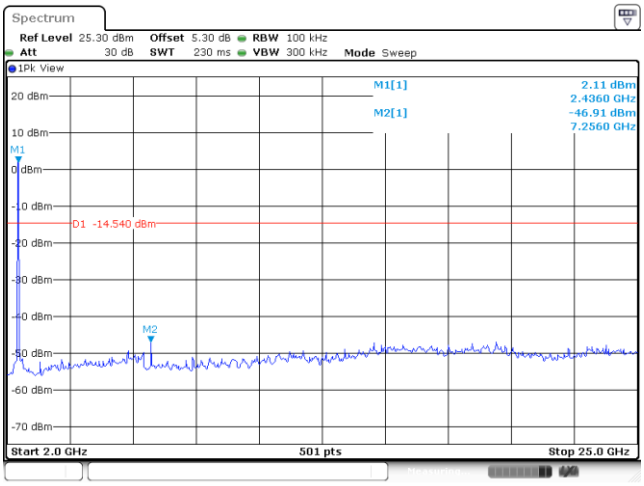
Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

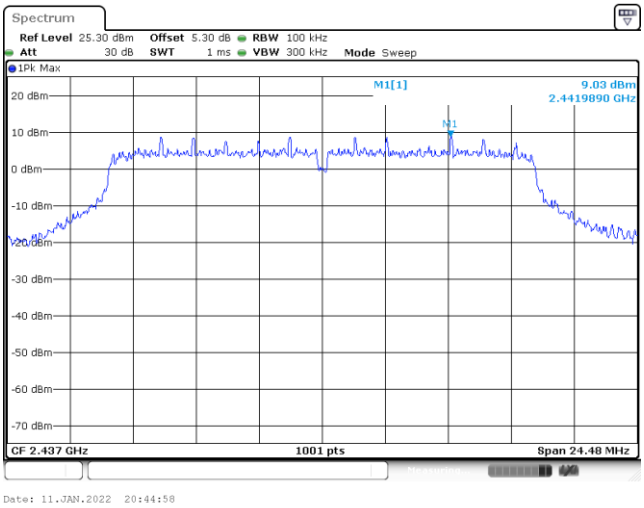
Test Mode :	802.11g	Test Channel :	01

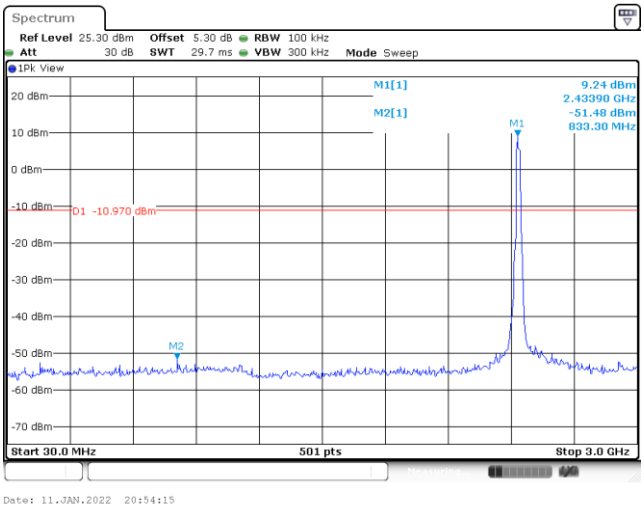
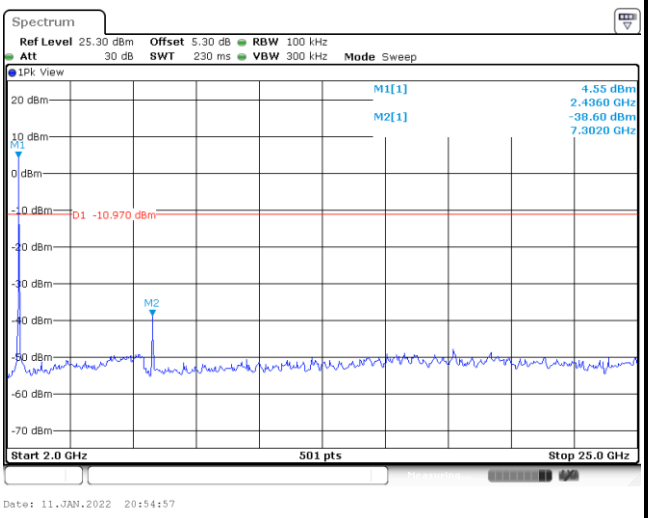
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	02

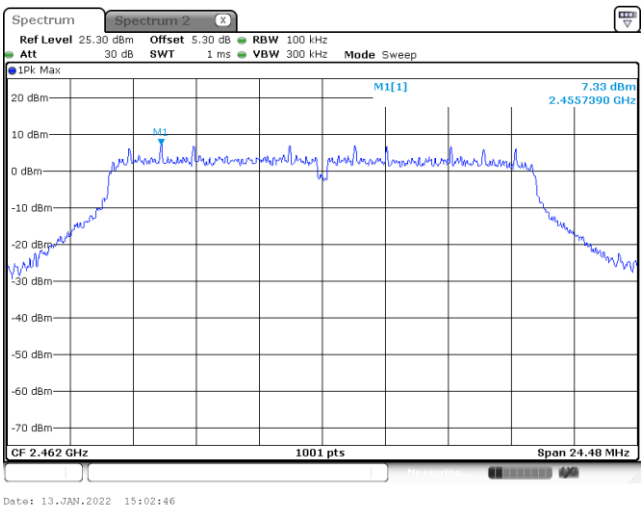
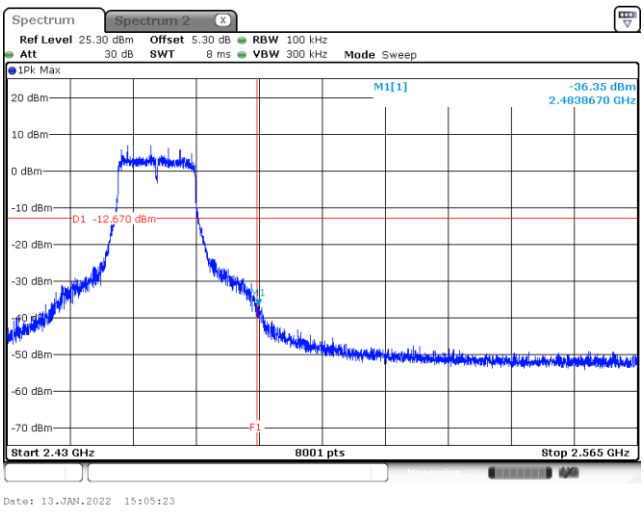
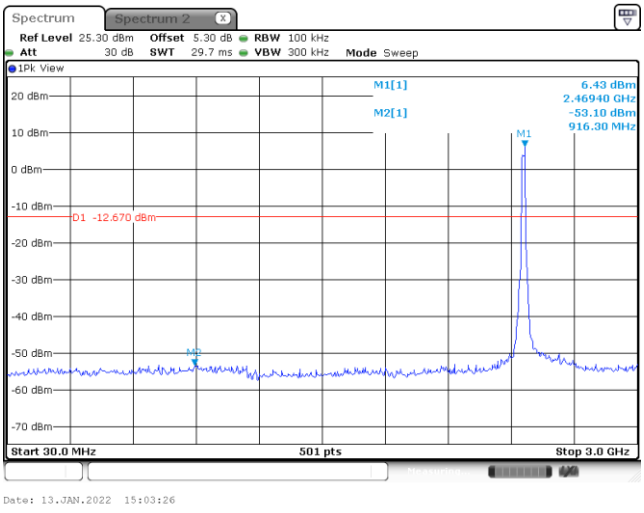
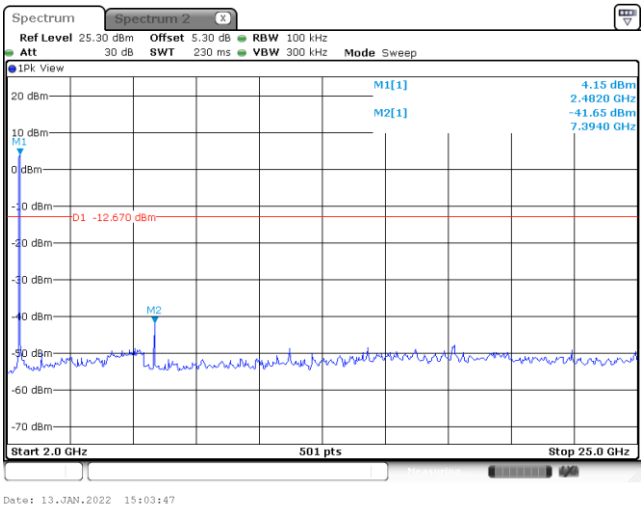
100kHz PSD reference Level	Channel Plot
	
Date: 7.FEB.2022 14:44:17	Date: 7.FEB.2022 14:44:36
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 7.FEB.2022 14:48:19	Date: 7.FEB.2022 14:48:30

Test Mode :	802.11g	Test Channel :	06

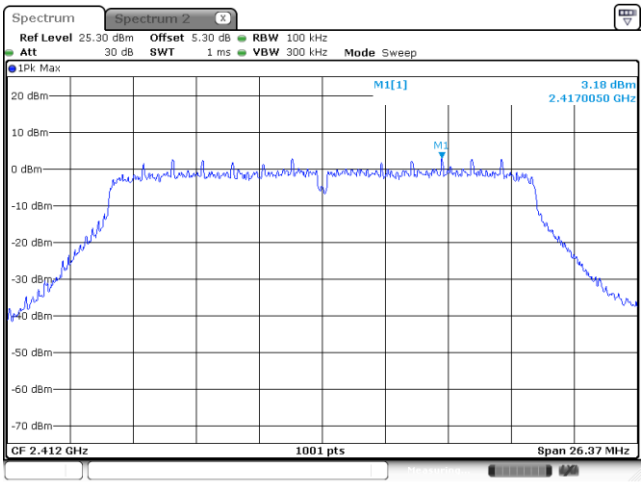
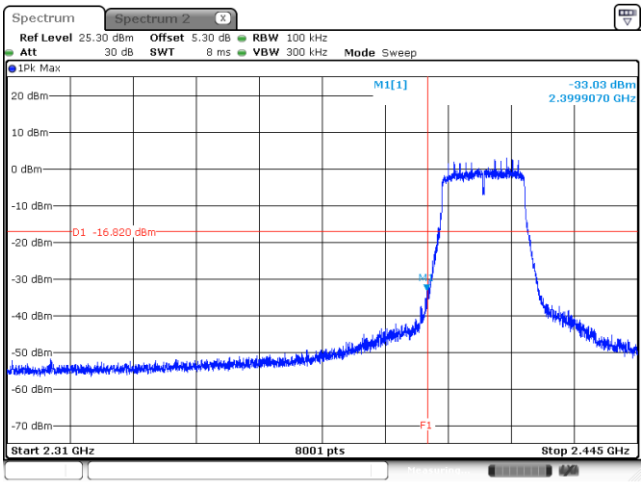
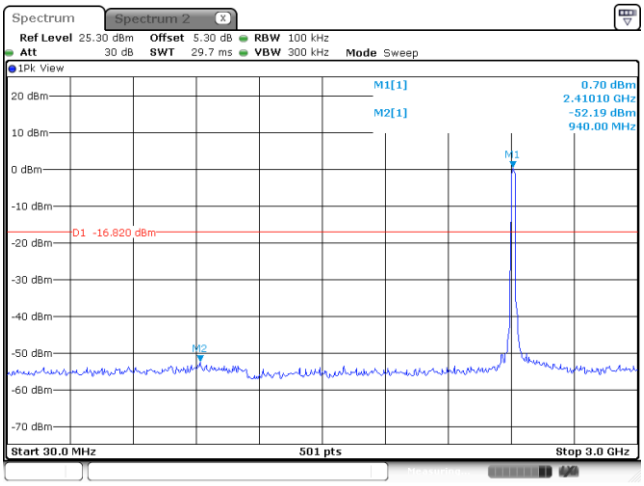
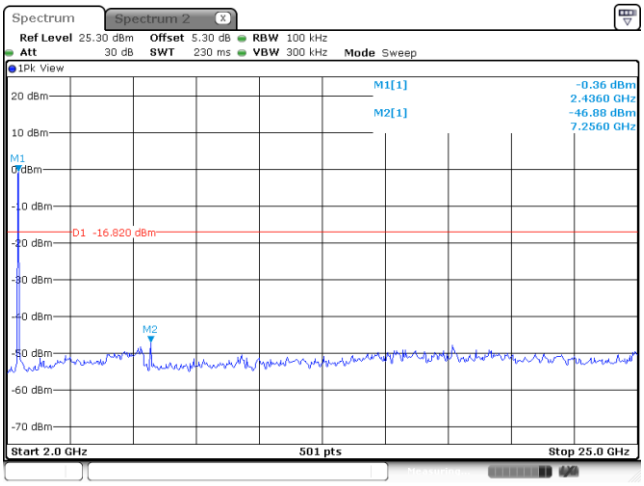
100kHz PSD reference Level	Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

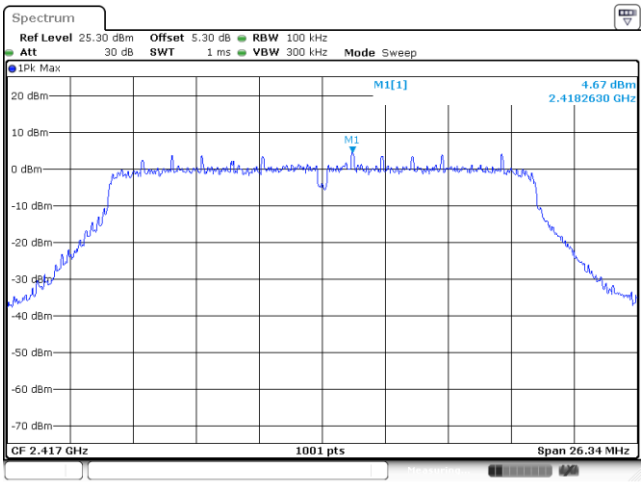
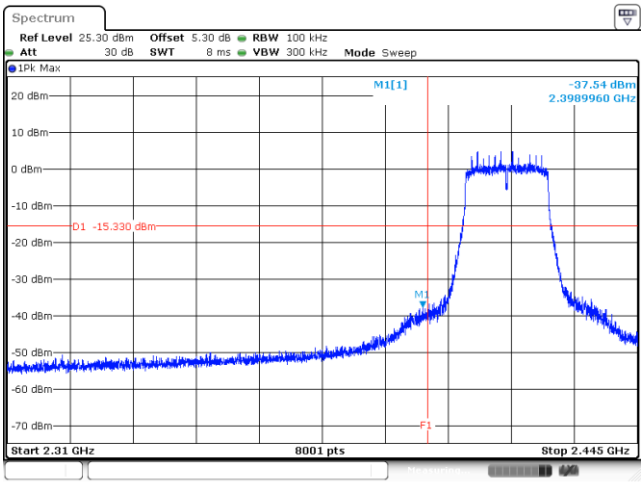
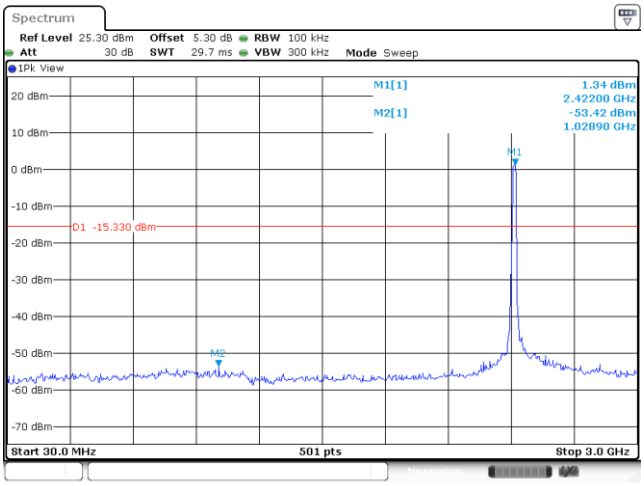
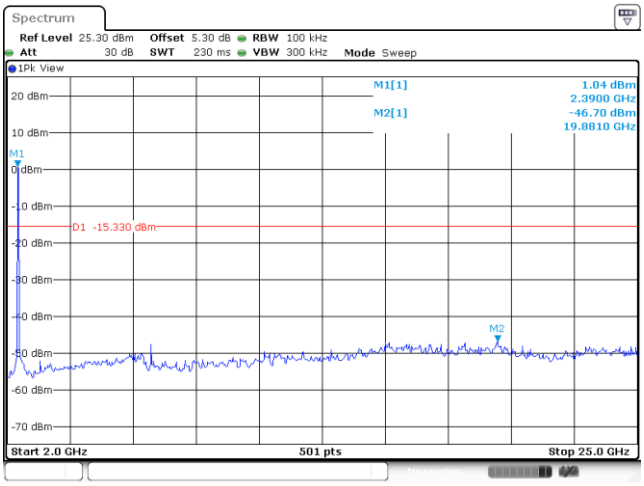
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

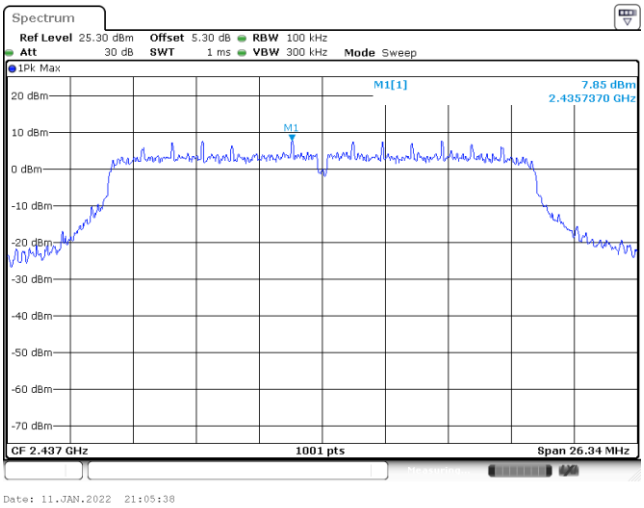
Test Mode :	802.11n HT20	Test Channel :	01

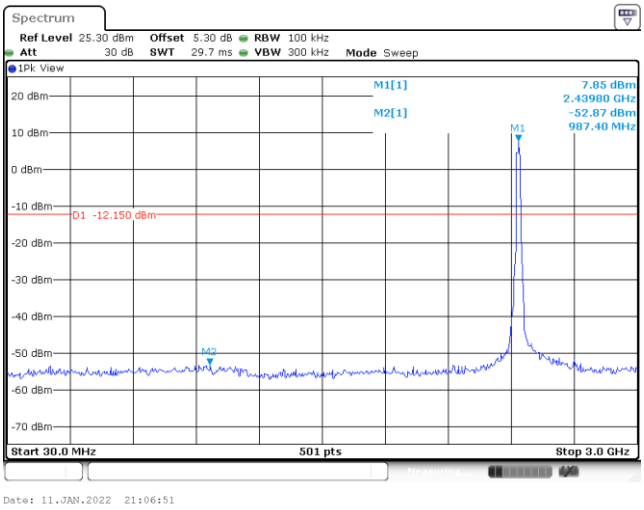
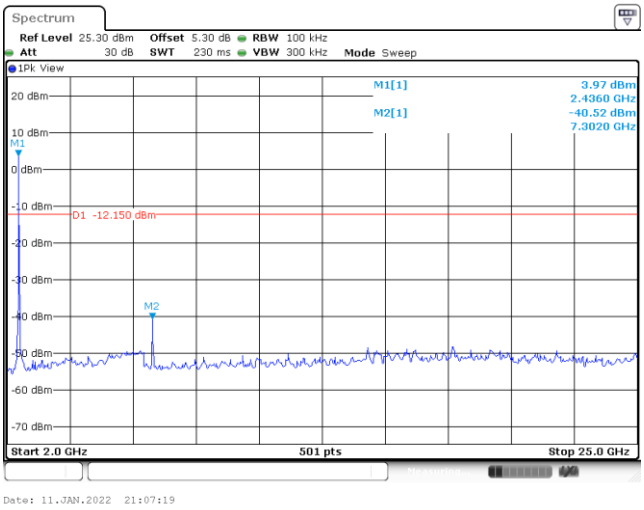
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	02

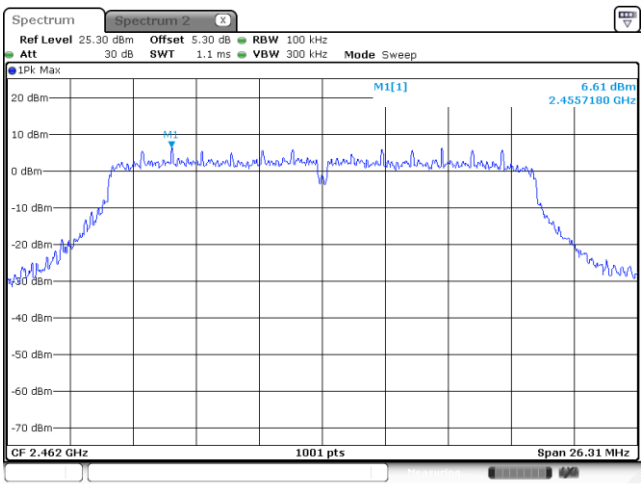
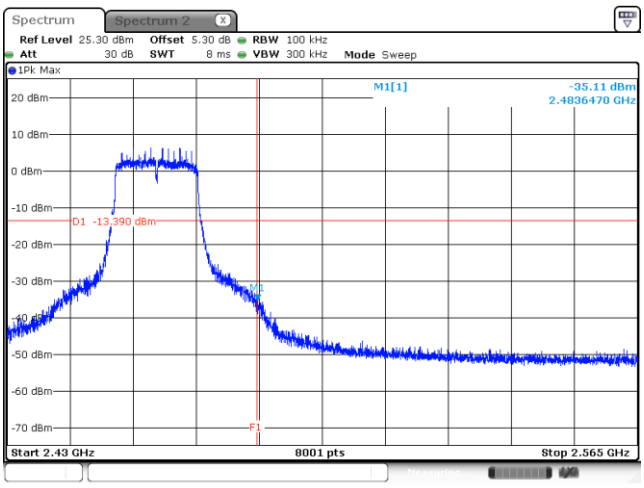
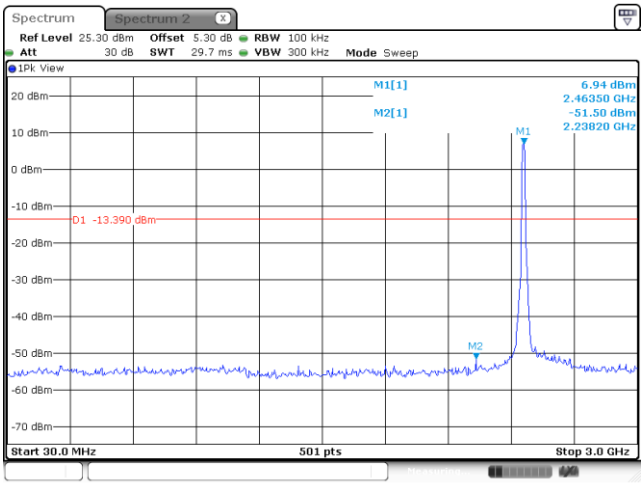
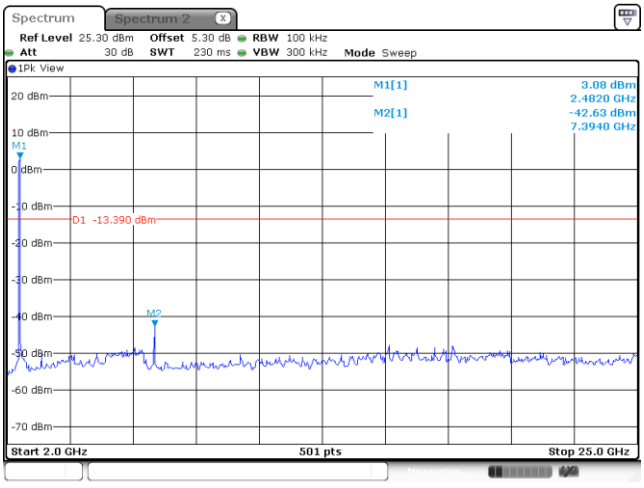
100kHz PSD reference Level	Channel Plot
	
Date: 7.FEB.2022 14:51:38	Date: 7.FEB.2022 14:51:57
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 7.FEB.2022 14:52:18	Date: 7.FEB.2022 14:52:38

Test Mode :	802.11n HT20	Test Channel :	06

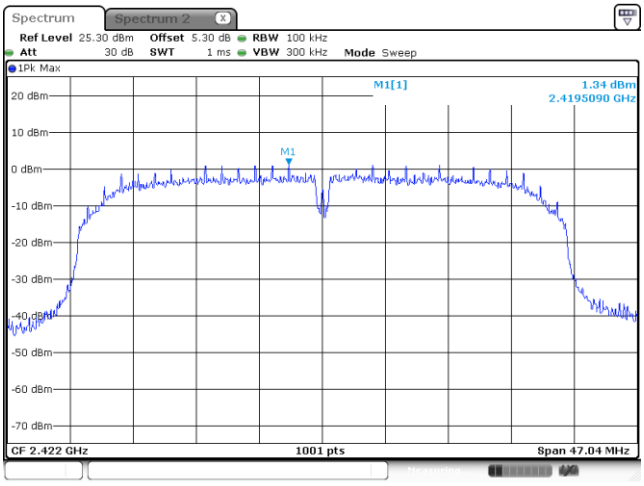
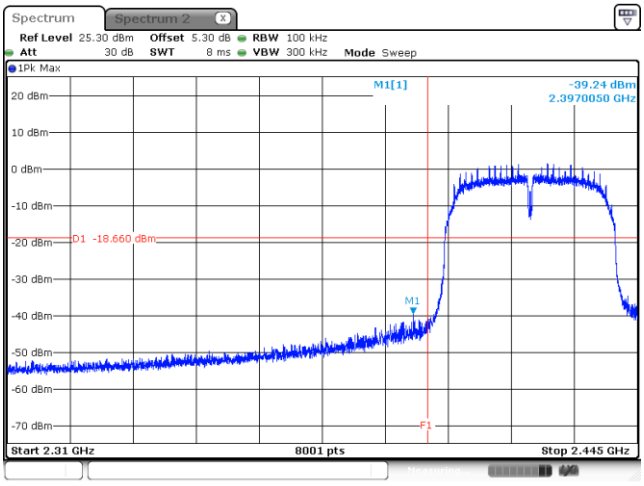
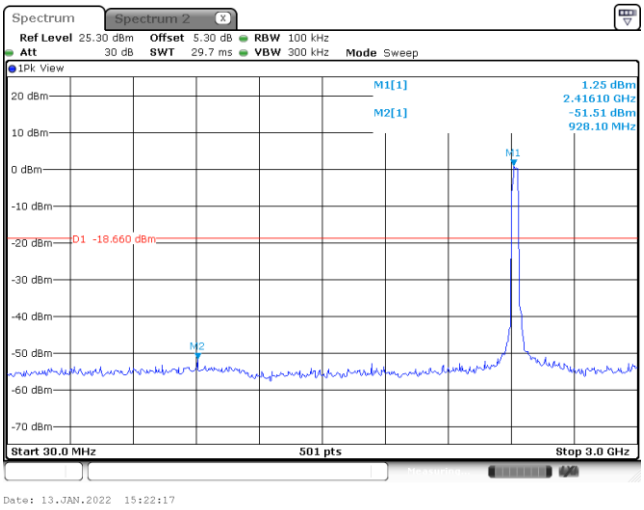
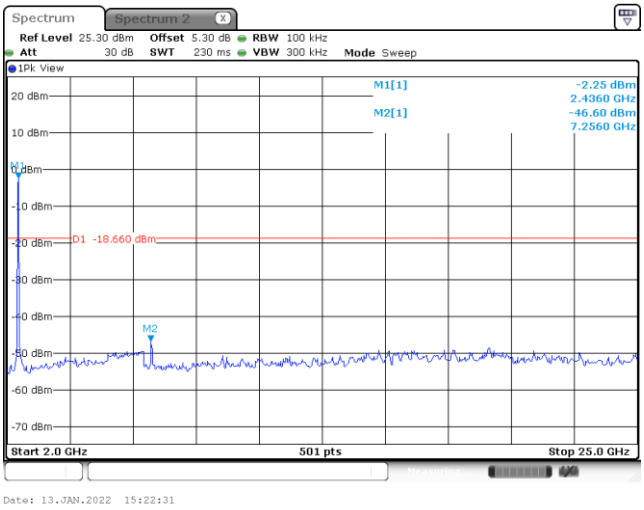
100kHz PSD reference Level	Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

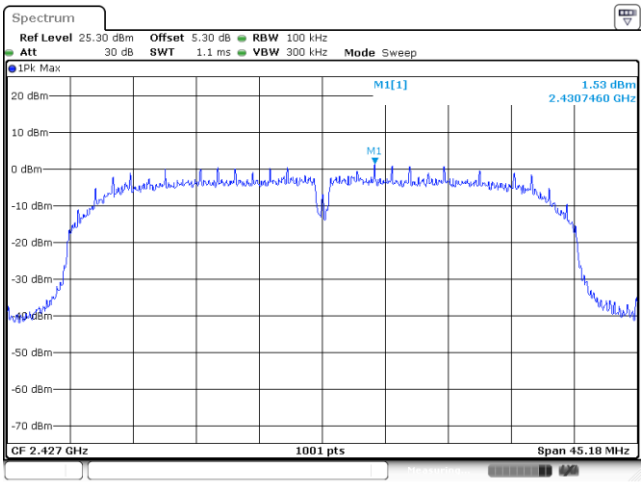
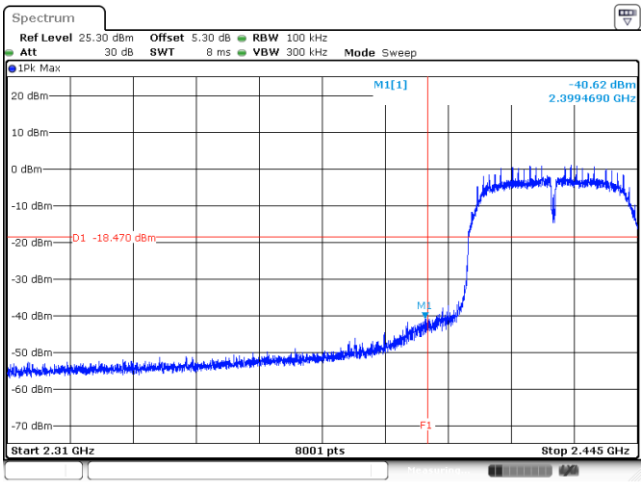
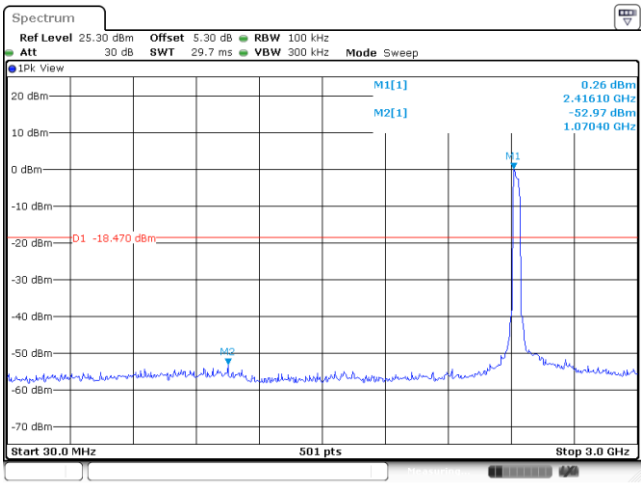
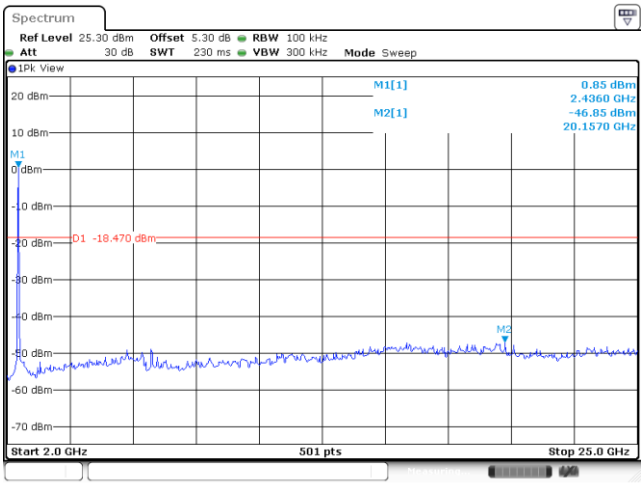
Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

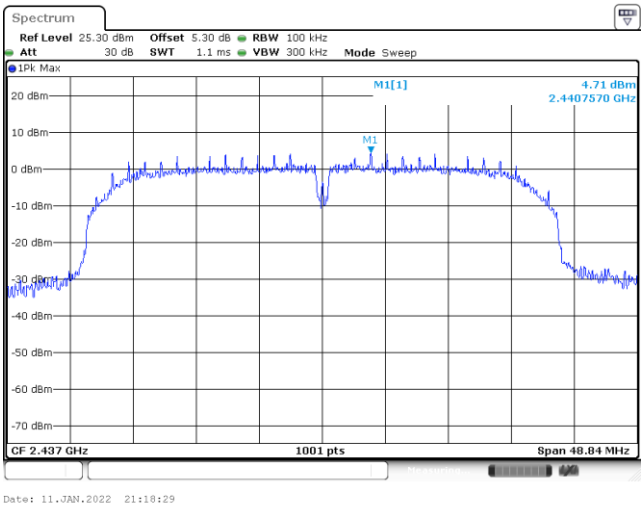
Test Mode :	802.11n HT40	Test Channel :	03

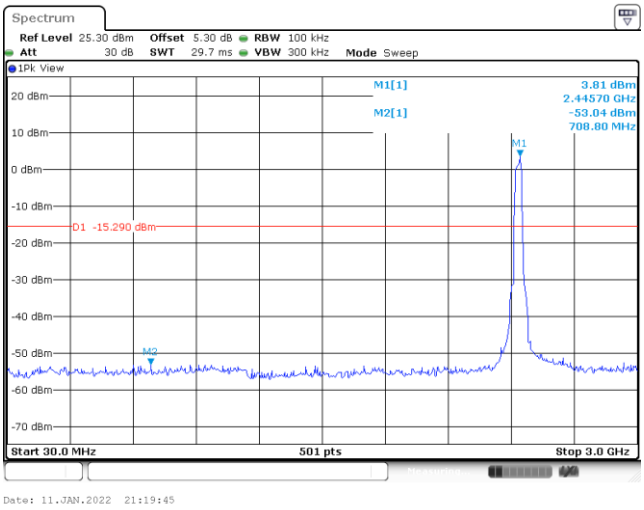
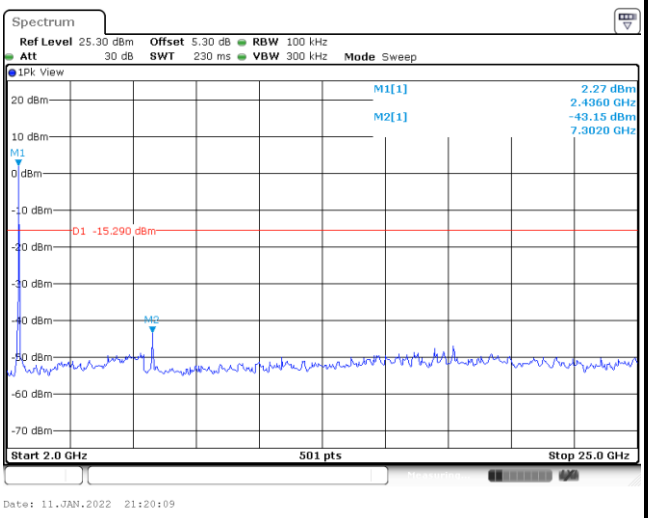
100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	04

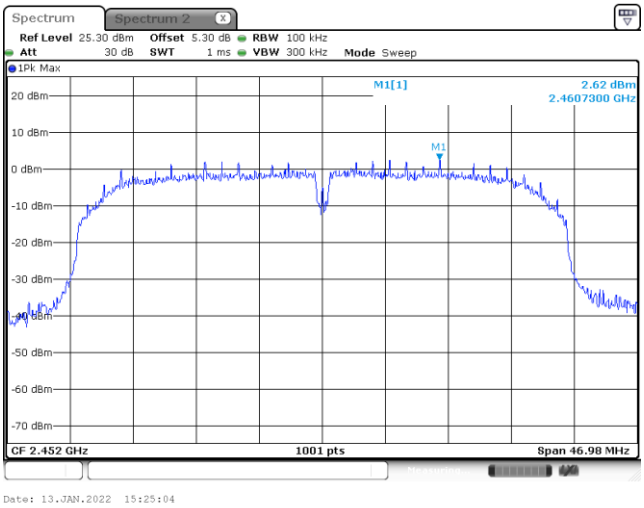
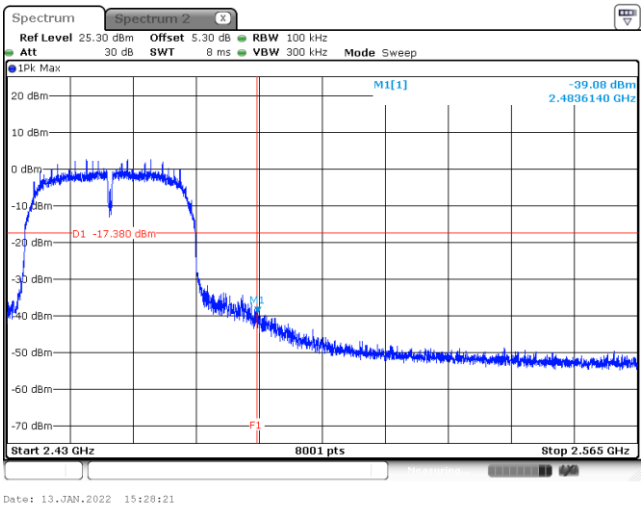
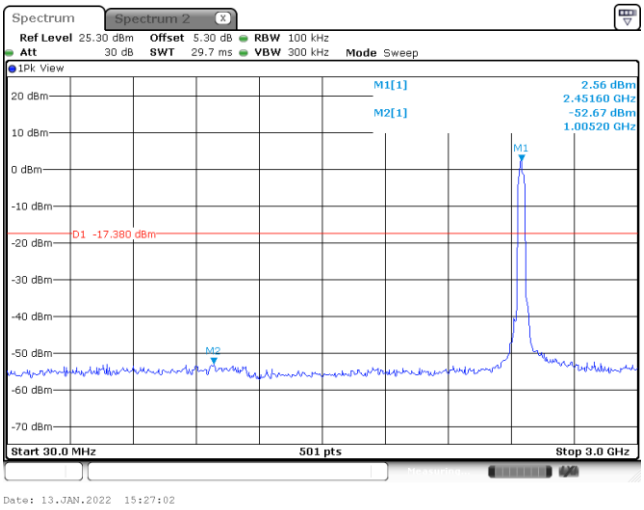
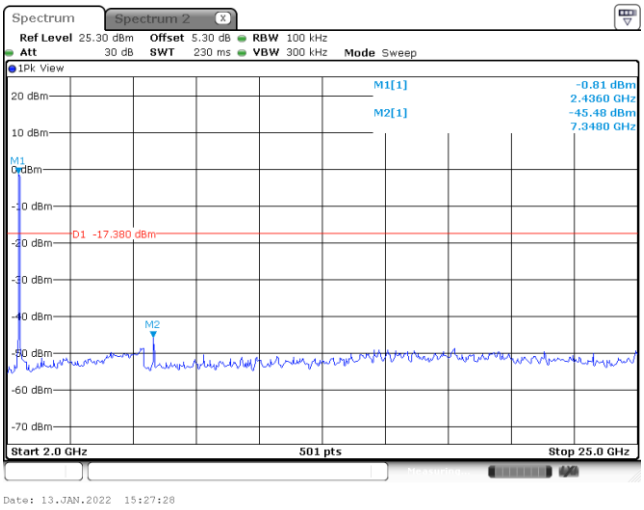
100kHz PSD reference Level	Channel Plot
 Date: 7.FEB.2022 14:55:15	 Date: 7.FEB.2022 14:55:34
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 7.FEB.2022 14:57:32	 Date: 7.FEB.2022 14:58:19

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT40	Test Channel :	09

100kHz PSD reference Level	Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

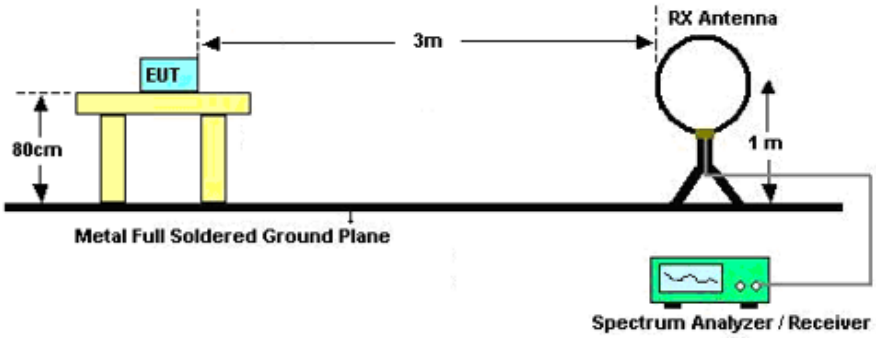
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

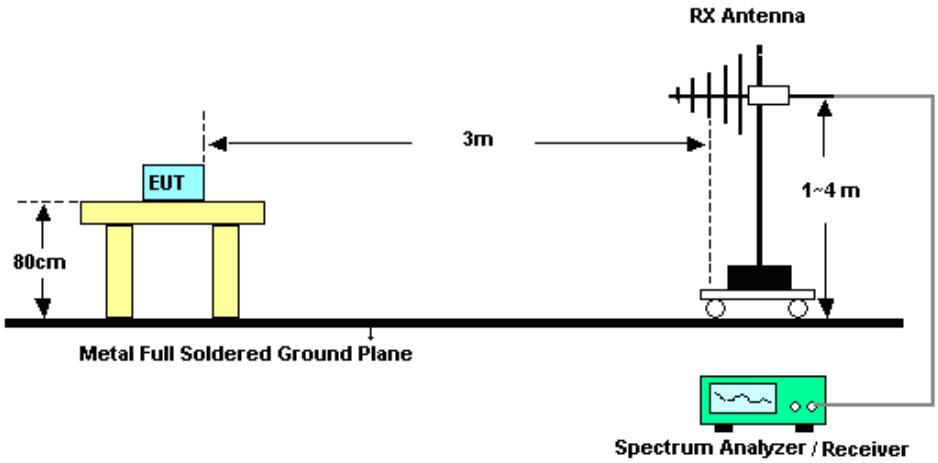
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

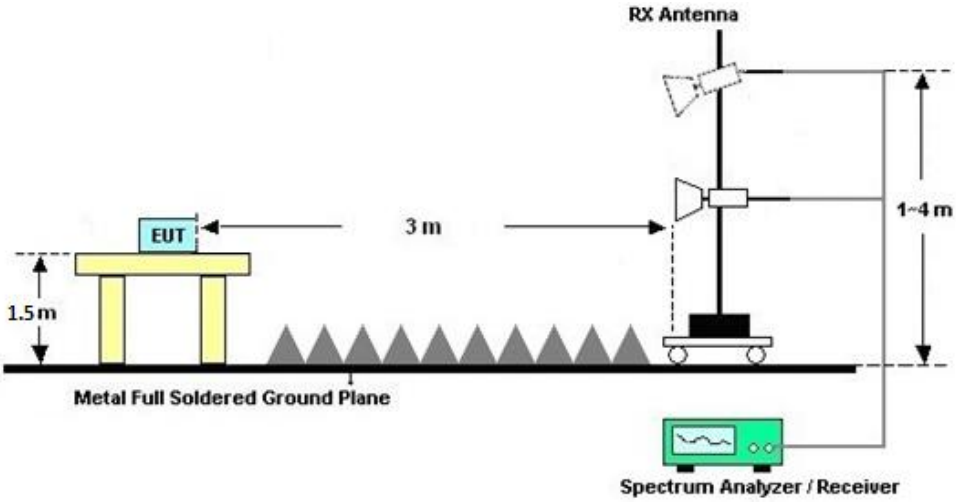
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and Appendix D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C and Appendix D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

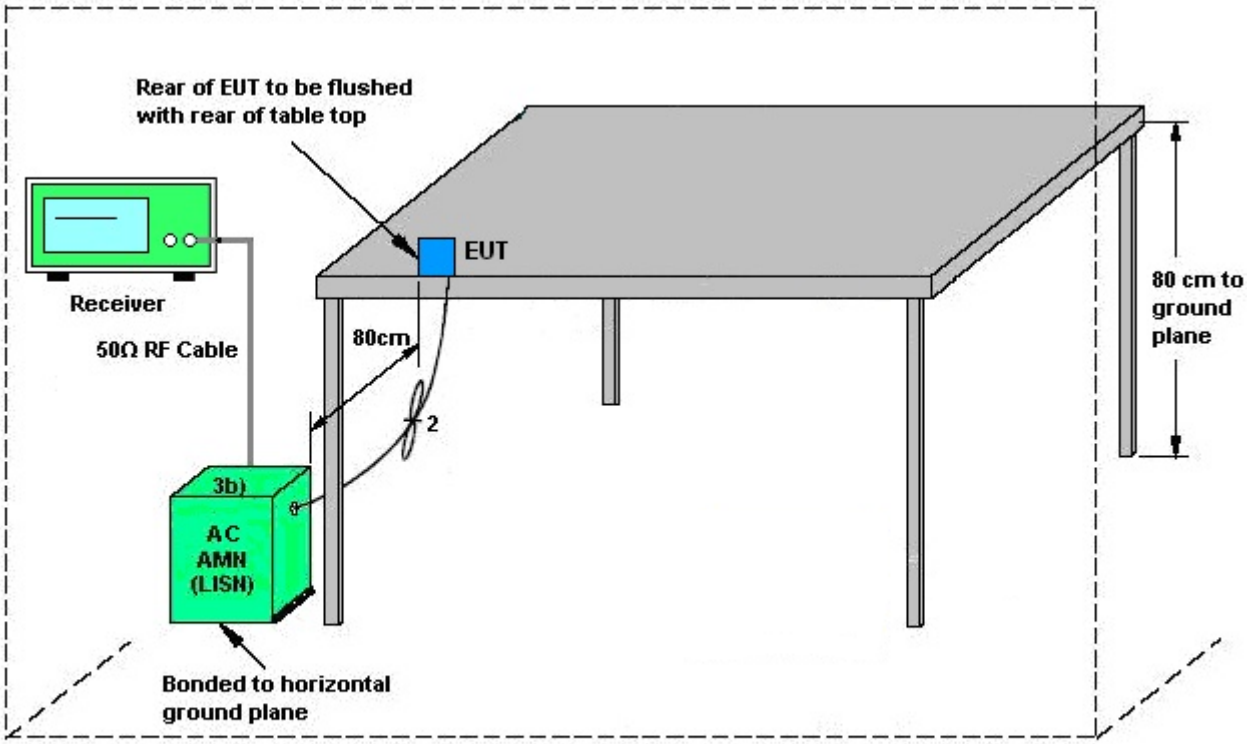
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 14, 2021	Jan. 11, 2022~ Feb. 07, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2022	Jan. 11, 2022~ Feb. 07, 2022	Jan. 04, 2023	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2022	Jan. 11, 2022~ Feb. 07, 2022	Jan. 04, 2023	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH02-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 11, 2022	Oct. 29, 2022	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 22, 2021	Feb. 11, 2022	Dec. 21, 2022	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 30, 2021	Feb. 11, 2022	Oct. 29, 2022	Radiation (03CH02-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Jul. 30, 2021	Feb. 11, 2022	Jul. 29, 2023	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Feb. 11, 2022	Jan. 04, 2023	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Apr. 13, 2021	Feb. 11, 2022	Apr. 12, 2022	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5GHz	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH02-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Feb. 11, 2022	Jan. 04, 2023	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 11, 2022	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 11, 2022	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 11, 2022	NCR	Radiation (03CH02-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr.13, 2021	Feb. 11, 2022	Apr. 12, 2022	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 11, 2022	Oct. 29, 2022	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 04, 2021	Feb. 11, 2022	Jun. 03, 2022	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 24, 2021	Feb. 11, 2022	Apr. 23, 2022	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Feb. 11, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Apr. 12, 2021	Feb. 11, 2022	Apr. 11, 2022	Radiation (03CH05-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Feb. 11, 2022	Jan. 04, 2023	Radiation (03CH05-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2012228	1Ghz-18Ghz	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5GHz	Oct. 16, 2021	Feb. 11, 2022	Oct. 15, 2022	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Feb. 11, 2022	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 11, 2022	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 11, 2022	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Mar. 05, 2022	Apr. 20, 2022	Conduction (CO01-KS)

AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Mar. 05, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Apr. 13, 2021	Mar. 05, 2022	Apr. 12, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Mar. 05, 2022	Oct. 13, 2022	Conduction (CO01-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.94dB**

03CH02:

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.9dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1dB**

03CH05:

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

---------- THE END ----------

Appendix A. Conducted Test Results

Report Number : FR1D1703B

A1 - DTS Part

Test Engineer:	Jacob Zhang	Temperature:	21~25	°C
Test Date:	2022/1/11~2022/2/07	Relative Humidity:	51~54	%

Report Number : FR1D1703B

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	13.14	9.54	0.50	Pass
11b	1Mbps	1	6	2437	13.24	10.02	0.50	Pass
11b	1Mbps	1	11	2462	13.24	9.52	0.50	Pass
11g	6Mbps	1	1	2412	19.03	16.34	0.50	Pass
11g	6Mbps	1	2	2417	18.33	16.32	0.50	Pass
11g	6Mbps	1	6	2437	19.28	16.32	0.50	Pass
11g	6Mbps	1	11	2462	19.28	16.32	0.50	Pass
HT20	MCS0	1	1	2412	19.28	17.58	0.50	Pass
HT20	MCS0	1	2	2417	18.98	17.56	0.50	Pass
HT20	MCS0	1	6	2437	19.38	17.56	0.50	Pass
HT20	MCS0	1	11	2462	19.53	17.54	0.50	Pass
HT40	MCS0	1	3	2422	33.97	31.36	0.50	Pass
HT40	MCS0	1	4	2427	33.77	30.12	0.50	Pass
HT40	MCS0	1	6	2437	34.07	32.56	0.50	Pass
HT40	MCS0	1	9	2452	33.87	31.32	0.50	Pass

Report Number : FR1D1703B

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
11b	1Mbps	1	1	2412	23.03	30.00	3.26	26.29	36.00	Pass
11b	1Mbps	1	6	2437	22.86	30.00	3.26	26.12	36.00	Pass
11b	1Mbps	1	11	2462	23.36	30.00	3.26	26.62	36.00	Pass
11g	6Mbps	1	1	2412	23.66	30.00	3.26	26.92	36.00	Pass
11g	6Mbps	1	2	2417	24.62	30.00	3.26	27.88	36.00	Pass
11g	6Mbps	1	6	2437	25.54	30.00	3.26	28.80	36.00	Pass
11g	6Mbps	1	11	2462	24.95	30.00	3.26	28.21	36.00	Pass
HT20	MCS0	1	1	2412	23.28	30.00	3.26	26.54	36.00	Pass
HT20	MCS0	1	2	2417	24.38	30.00	3.26	27.64	36.00	Pass
HT20	MCS0	1	6	2437	25.34	30.00	3.26	28.60	36.00	Pass
HT20	MCS0	1	11	2462	24.81	30.00	3.26	28.07	36.00	Pass
HT40	MCS0	1	3	2422	23.81	30.00	3.26	27.07	36.00	Pass
HT40	MCS0	1	4	2427	23.87	30.00	3.26	27.13	36.00	Pass
HT40	MCS0	1	6	2437	25.24	30.00	3.26	28.50	36.00	Pass
HT40	MCS0	1	9	2452	24.53	30.00	3.26	27.79	36.00	Pass

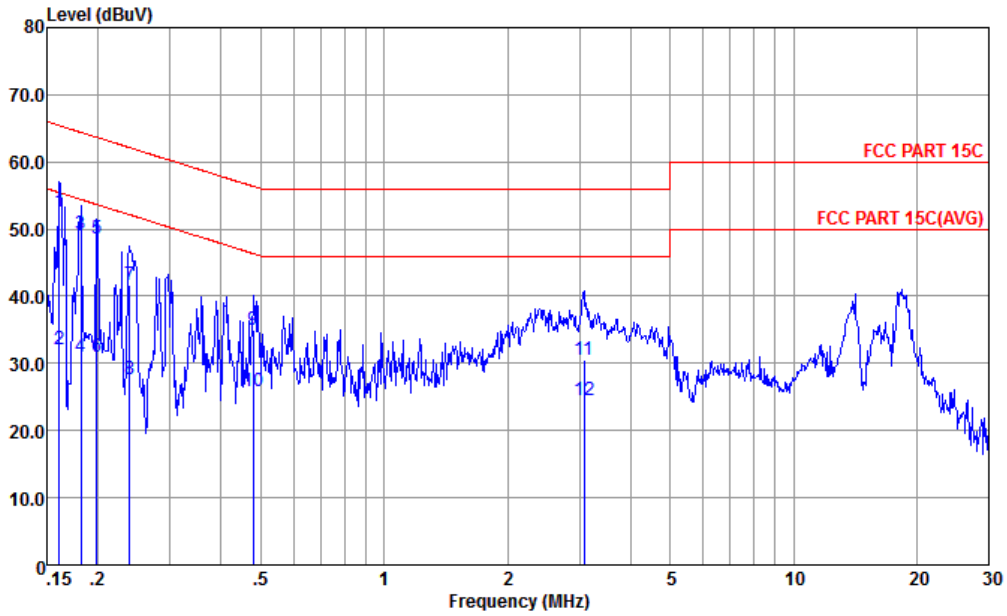
Report Number : FR1D1703B

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-1.97	3.26	8.00	Pass
11b	1Mbps	1	6	2437	-1.94	3.26	8.00	Pass
11b	1Mbps	1	11	2462	-1.57	3.26	8.00	Pass
11g	6Mbps	1	1	2412	-10.16	3.26	8.00	Pass
11g	6Mbps	1	2	2417	-8.84	3.26	8.00	Pass
11g	6Mbps	1	6	2437	-5.58	3.26	8.00	Pass
11g	6Mbps	1	11	2462	-6.67	3.26	8.00	Pass
HT20	MCS0	1	1	2412	-10.24	3.26	8.00	Pass
HT20	MCS0	1	2	2417	-9.33	3.26	8.00	Pass
HT20	MCS0	1	6	2437	-5.60	3.26	8.00	Pass
HT20	MCS0	1	11	2462	-6.39	3.26	8.00	Pass
HT40	MCS0	1	3	2422	-8.90	3.26	8.00	Pass
HT40	MCS0	1	4	2427	-11.25	3.26	8.00	Pass
HT40	MCS0	1	6	2437	-6.78	3.26	8.00	Pass
HT40	MCS0	1	9	2452	-8.45	3.26	8.00	Pass

Appendix B. AC Conducted Emission Test Results

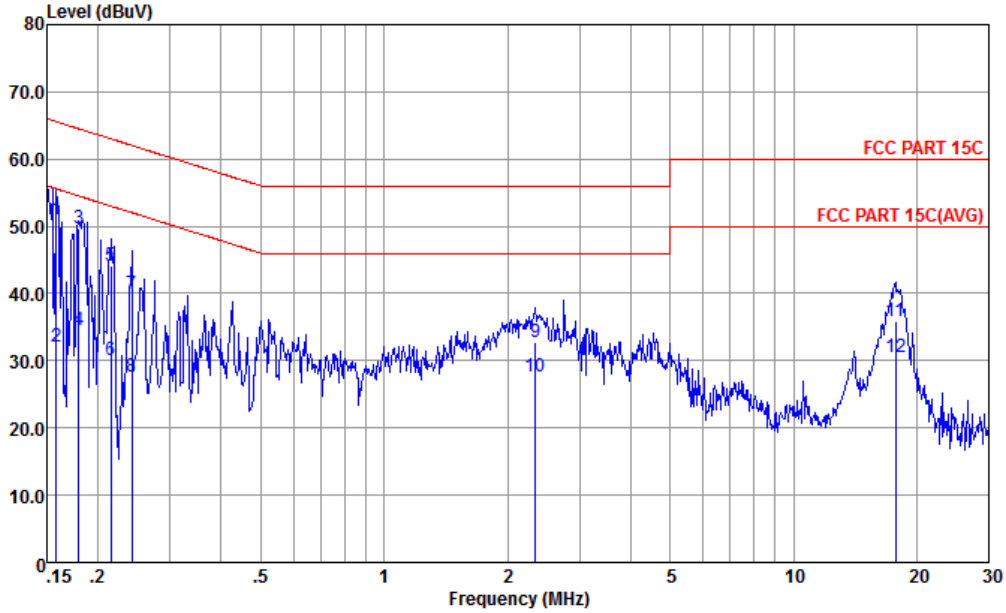
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-060105-L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.161	52.68	-12.75	65.43	42.21	0.02	10.45	QP
2	0.161	32.08	-23.35	55.43	21.61	0.02	10.45	Average
3	0.182	49.34	-15.08	64.42	38.91	0.03	10.40	QP
4	0.182	31.04	-23.38	54.42	20.61	0.03	10.40	Average
5	0.199	48.61	-15.06	63.67	38.20	0.04	10.37	QP
6	0.199	31.01	-22.66	53.67	20.60	0.04	10.37	Average
7	0.239	41.59	-20.54	62.13	31.20	0.05	10.34	QP
8	0.239	27.59	-24.54	52.13	17.20	0.05	10.34	Average
9	0.479	34.94	-21.42	56.36	24.60	0.10	10.24	QP
10	0.479	25.84	-20.52	46.36	15.50	0.10	10.24	Average
11	3.074	30.59	-25.41	56.00	20.20	0.15	10.24	QP
12	3.074	24.59	-21.41	46.00	14.20	0.15	10.24	Average

Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-060105-N NEUTRAL

	Freq MHz	Level dBuV	Over Limit dB	Limit Line dBuV	Read Level dBuV	LISN Factor dB	Cable Loss dB	Remark
1 *	0.158	51.07	-14.49	65.56	40.50	0.11	10.46	QP
2	0.158	32.17	-23.39	55.56	21.60	0.11	10.46	Average
3	0.180	49.71	-14.79	64.50	39.20	0.10	10.41	QP
4	0.180	34.61	-19.89	54.50	24.10	0.10	10.41	Average
5	0.215	44.05	-18.96	63.01	33.60	0.10	10.35	QP
6	0.215	30.05	-22.96	53.01	19.60	0.10	10.35	Average
7	0.242	39.94	-22.10	62.04	29.50	0.10	10.34	QP
8	0.242	27.74	-24.30	52.04	17.30	0.10	10.34	Average
9	2.346	32.68	-23.32	56.00	22.31	0.14	10.23	QP
10	2.346	27.58	-18.42	46.00	17.21	0.14	10.23	Average
11	17.755	35.98	-24.02	60.00	25.10	0.43	10.45	QP
12	17.755	30.58	-19.42	50.00	19.70	0.43	10.45	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

Appendix C. Radiated Spurious Emission

Test Engineer :	Henzy LI	**Temperature :**	21~22°C
		Relative Humidity :	43~45%

Band		Power setting
11b Tx	CH01	0
11b Tx	CH06	0
11b Tx	CH11	0
11g Tx	CH01	16
11g Tx	CH02	8
11g Tx	CH06	0
11g Tx	CH11	8
11n(20M) Tx	CH01	14
11n(20M) Tx	CH02	5
11n(20M) Tx	CH06	0
11n(20M) Tx	CH11	6
11n(40M) Tx	CH03	10
11n(40M) Tx	CH04	7
11n(40M) Tx	CH06	0
11n(40M) Tx	CH09	7

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2385.79	61.51	-12.49	74	60.77	30.5	7.1	36.86	163	348	P	H
		2385.79	50.77	-3.23	54	50.03	30.5	7.1	36.86	163	348	A	H
	*	2410	117.12	-	-	116.27	30.57	7.13	36.85	163	348	P	H
	*	2412	109.96	-	-	109.11	30.57	7.13	36.85	163	348	A	H
		2388.78	52.84	-21.16	74	52.1	30.5	7.1	36.86	302	342	P	V
		2389.69	42.32	-11.68	54	41.58	30.5	7.1	36.86	302	342	A	V
	*	2414	107.11	-	-	106.26	30.57	7.13	36.85	302	342	P	V
	*	2414	99.88	-	-	99.03	30.57	7.13	36.85	302	342	A	V
802.11b CH 11 2462MHz	*	2464	117.68	-	-	116.5	30.79	7.22	36.83	131	91	P	H
	*	2464	110.58	-	-	109.4	30.79	7.22	36.83	131	91	A	H
		2483.74	59.4	-14.6	74	58.11	30.86	7.25	36.82	131	91	P	H
		2483.5	50.68	-3.32	54	49.39	30.86	7.25	36.82	131	91	A	H
	*	2460	113.91	-	-	112.73	30.79	7.22	36.83	378	120	P	V
	*	2462	107.05	-	-	105.87	30.79	7.22	36.83	378	120	A	V
		2483.68	54.99	-19.01	74	53.7	30.86	7.25	36.82	378	120	P	V
		2483.5	45.48	-8.52	54	44.19	30.86	7.25	36.82	378	120	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4830	52.85	-21.15	74	73.37	34.61	10.25	65.38	359	141	P	H
		4830	45.27	-8.73	54	65.79	34.61	10.25	65.38	359	141	A	H
		7230	48.48	-39.22	87.70	64.71	36.71	12.71	65.65	300	0	P	H
		9645	55.78	-31.92	87.70	70.02	37.79	14.94	66.97	300	0	P	H
		4830	49.68	-24.32	74	70.2	34.61	10.25	65.38	100	0	P	V
		7230	47.66	-36.92	84.58	63.89	36.71	12.71	65.65	100	0	P	V
		9645	57.83	-26.75	84.58	72.07	37.79	14.94	66.97	100	0	P	V
802.11b CH 06 2437MHz		4875	47.82	-26.18	74	68.26	34.69	10.29	65.42	300	0	P	H
		7305	45.81	-28.19	74	62.32	36.68	12.72	65.91	300	0	P	H
		9750	55.77	-32.73	88.50	69.92	37.91	14.99	67.05	300	0	P	H
		4875	49.27	-24.73	74	69.71	34.69	10.29	65.42	100	0	P	V
		7305	45.82	-28.18	74	62.33	36.68	12.72	65.91	100	0	P	V
		9750	56.81	-27.3	84.11	70.96	37.91	14.99	67.05	100	0	P	V
802.11b CH 11 2462MHz		4920	48.24	-25.76	74	68.58	34.77	10.34	65.45	300	0	P	H
		7380	45.17	-28.83	74	61.9	36.65	12.73	66.11	300	0	P	H
		9840	54.07	-35.01	89.08	68.14	38.01	15.03	67.11	300	0	P	H
		4920	49.67	-24.33	74	70.01	34.77	10.34	65.45	100	0	P	V
		7380	46.12	-27.88	74	62.85	36.65	12.73	66.11	100	0	P	V
		9855	56.73	-19.82	76.55	70.78	38.03	15.04	67.12	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2389.95	68.61	-5.39	74	67.87	30.5	7.1	36.86	166	2	P	H
		2389.95	52.28	-1.72	54	51.54	30.5	7.1	36.86	166	2	A	H
	*	2414	110.43	-	-	109.58	30.57	7.13	36.85	166	2	P	H
	*	2412	102.2	-	-	101.35	30.57	7.13	36.85	166	2	A	H
		2389.95	62.18	-11.82	74	61.44	30.5	7.1	36.86	354	42	P	V
		2389.95	46.34	-7.66	54	45.6	30.5	7.1	36.86	354	42	A	V
	*	2412	105.46	-	-	104.61	30.57	7.13	36.85	354	42	P	V
	*	2412	97.41	-	-	96.56	30.57	7.13	36.85	354	42	A	V
802.11g CH 02 2417MHz		2389.56	66.79	-7.21	74	66.05	30.5	7.1	36.86	361	0	P	H
		2389.95	51.99	-2.01	54	51.25	30.5	7.1	36.86	361	0	A	H
		2412	111.58	-	-	110.73	30.57	7.13	36.85	361	0	P	H
		2412	103.8	-	-	102.95	30.57	7.13	36.85	361	0	A	H
		2389.82	62.18	-11.82	74	61.44	30.5	7.1	36.86	390	0	P	V
		2389.95	46.96	-7.04	54	46.22	30.5	7.1	36.86	390	0	A	V
		2412	108.88	-	-	108.03	30.57	7.13	36.85	390	0	P	V
		2412	101.28	-	-	100.43	30.57	7.13	36.85	390	0	A	V
802.11g CH 11 2462MHz		2483.62	71.21	-2.79	74	69.92	30.86	7.25	36.82	132	15	P	H
		2483.5	52.41	-1.59	54	51.12	30.86	7.25	36.82	132	15	A	H
	*	2462	110.56	-	-	109.38	30.79	7.22	36.83	132	15	P	H
	*	2460	102.84	-	-	101.66	30.79	7.22	36.83	132	15	A	H
		2483.5	62.3	-11.7	74	61.01	30.86	7.25	36.82	270	15	P	V
		2483.5	45.12	-8.88	54	43.83	30.86	7.25	36.82	270	15	A	V
	*	2456	105.01	-	-	103.83	30.79	7.22	36.83	270	15	P	V
	*	2456	96.94	-	-	95.76	30.79	7.22	36.83	270	15	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4830	48.48	-25.52	74	69	34.61	10.25	65.38	300	0	P	H
		7230	50.04	-27.99	78.03	66.27	36.71	12.71	65.65	300	0	P	H
		9660	55.39	-22.64	78.03	69.62	37.79	14.95	66.97	300	0	P	H
		4830	47.38	-26.62	74	67.9	34.61	10.25	65.38	100	0	P	V
		7245	50.79	-17.02	67.81	67.07	36.7	12.72	65.7	100	0	P	V
		9645	57.11	-10.7	67.81	71.35	37.79	14.94	66.97	100	0	P	V
802.11g CH 02 2417MHz		4834	46.88	-27.12	74	67.39	34.63	10.25	65.39	300	0	P	H
		7251	48.47	-25.53	74	64.81	36.7	12.72	65.76	300	0	P	H
		9675	52.97	-25.03	78	67.18	37.81	14.96	66.98	300	0	P	H
		4834	45.81	-28.19	74	66.32	34.63	10.25	65.39	100	0	P	V
		7251	47	-27	74	63.34	36.7	12.72	65.76	100	0	P	V
		9675	54.89	-16.21	71.10	69.1	37.81	14.96	66.98	100	0	P	V
802.11g CH 06 2437MHz		4875	49.05	-24.95	74	69.49	34.69	10.29	65.42	300	0	P	H
		7305	53.9	-20.1	74	70.41	36.68	12.72	65.91	110	250	P	H
		7305	42.98	-11.02	54	59.49	36.68	12.72	65.91	110	250	A	H
		9750	59.51	-23.09	82.60	73.66	37.91	14.99	67.05	300	0	P	H
		4875	48.2	-25.8	74	68.64	34.69	10.29	65.42	100	0	P	V
		7305	51.61	-22.39	74	68.12	36.68	12.72	65.91	100	0	P	V
		9750	59.49	-10.8	70.29	73.64	37.91	14.99	67.05	100	0	P	V
802.11g CH 11 2462MHz		4920	47.43	-26.57	74	67.77	34.77	10.34	65.45	300	0	P	H
		7380	47.65	-26.35	74	64.38	36.65	12.73	66.11	300	0	P	H
		9855	56.9	-24.85	81.75	70.95	38.03	15.04	67.12	300	0	P	H
		4920	48.8	-25.2	74	69.14	34.77	10.34	65.45	100	0	P	V
		7380	49.33	-24.67	74	66.06	36.65	12.73	66.11	100	0	P	V
		9855	57.49	-10.2	67.69	71.54	38.03	15.04	67.12	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.69	67.36	-6.64	74	66.62	30.5	7.1	36.86	162	347	P	H
		2389.95	52.33	-1.67	54	51.59	30.5	7.1	36.86	162	347	A	H
	*	2410	110.35	-	-	109.5	30.57	7.13	36.85	162	347	P	H
	*	2406	102.19	-	-	101.34	30.57	7.13	36.85	162	347	A	H
		2389.04	58.56	-15.44	74	57.82	30.5	7.1	36.86	251	323	P	V
		2389.95	44.19	-9.81	54	43.45	30.5	7.1	36.86	251	323	A	V
	*	2418	103.17	-	-	102.29	30.57	7.16	36.85	251	323	P	V
	*	2418	95.05	-	-	94.17	30.57	7.16	36.85	251	323	A	V
802.11n HT20 CH 02 2417MHz		2387.48	66.99	-7.01	74	66.25	30.5	7.1	36.86	360	0	P	H
		2389.95	53	-1	54	52.26	30.5	7.1	36.86	360	0	A	H
		2412	111.24	-	-	110.39	30.57	7.13	36.85	360	0	P	H
		2412	103.19	-	-	102.34	30.57	7.13	36.85	360	0	A	H
		2389.95	61.32	-12.68	74	60.58	30.5	7.1	36.86	390	66	P	V
		2389.95	47.76	-6.24	54	47.02	30.5	7.1	36.86	390	66	A	V
		2412	108.95	-	-	108.1	30.57	7.13	36.85	390	66	P	V
		2412	101.26	-	-	100.41	30.57	7.13	36.85	390	66	A	V
802.11n HT20 CH 11 2462MHz		2483.5	67.19	-6.81	74	65.9	30.86	7.25	36.82	131	360	P	H
		2483.5	52.1	-1.9	54	50.81	30.86	7.25	36.82	131	360	A	H
	*	2462	110.07	-	-	108.89	30.79	7.22	36.83	131	360	P	H
	*	2460	101.99	-	-	100.81	30.79	7.22	36.83	131	360	A	H
		2483.74	60.44	-13.56	74	59.15	30.86	7.25	36.82	268	16	P	V
		2483.5	45.29	-8.71	54	44	30.86	7.25	36.82	268	16	A	V
	*	2456	103.68	-	-	102.5	30.79	7.22	36.83	268	16	P	V
	*	2456	95.95	-	-	94.77	30.79	7.22	36.83	268	16	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4830	44.99	-29.01	74	65.51	34.61	10.25	65.38	300	0	P	H
		4830	43.3	-30.7	74	63.82	34.61	10.25	65.38	100	0	P	V
802.11n HT20 CH 02 2417MHz		4834	45.99	-28.01	74	66.5	34.63	10.25	65.39	300	0	P	H
		7251	47.38	-26.62	74	63.72	36.7	12.72	65.76	300	0	P	H
		9660	51.39	-28.6	79.99	65.62	37.79	14.95	66.97	300	0	P	H
		4834	45.84	-28.16	74	66.35	34.63	10.25	65.39	100	0	P	V
		7251	45.97	-28.03	74	62.31	36.7	12.72	65.76	100	0	P	V
		9675	53.45	-19.17	72.62	67.66	37.81	14.96	66.98	100	0	P	V
802.11n HT20 CH 06 2437MHz		4875	49.61	-24.39	74	70.05	34.69	10.29	65.42	300	0	P	H
		7305	51.6	-22.4	74	68.11	36.68	12.72	65.91	300	0	P	H
		9750	57.42	-23.02	80.44	71.57	37.91	14.99	67.05	300	0	P	H
		4875	47.01	-26.99	74	67.45	34.69	10.29	65.42	100	0	P	V
		7305	53.33	-20.67	74	69.84	36.68	12.72	65.91	314	214	P	V
		7305	42.71	-11.29	54	59.22	36.68	12.72	65.91	314	214	A	V
802.11n HT20 CH 11 2462MHz		4920	46.89	-27.11	74	67.23	34.77	10.34	65.45	300	0	P	H
		7380	47.85	-26.15	74	64.58	36.65	12.73	66.11	300	0	P	H
		9855	55.14	-22.68	77.82	69.19	38.03	15.04	67.12	300	0	P	H
		4920	46.96	-27.04	74	67.3	34.77	10.34	65.45	100	0	P	V
		7380	49.28	-24.72	74	66.01	36.65	12.73	66.11	100	0	P	V
		9840	56.61	-11.6	68.21	70.68	38.01	15.03	67.11	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		2389.95	68.5	-5.5	74	67.76	30.5	7.1	36.86	142	0	P	H
		2389.95	52.39	-1.61	54	51.65	30.5	7.1	36.86	142	0	A	H
	*	2414	107.03	-	-	106.18	30.57	7.13	36.85	142	0	P	H
	*	2414	98.77	-	-	97.92	30.57	7.13	36.85	142	0	A	H
		2485.6	54.71	-19.29	74	53.42	30.86	7.25	36.82	142	0	P	H
		2483.5	42.59	-11.41	54	41.3	30.86	7.25	36.82	142	0	A	H
		2389.95	58.41	-15.59	74	57.67	30.5	7.1	36.86	242	31	P	V
		2389.95	42.87	-11.13	54	42.13	30.5	7.1	36.86	242	31	A	V
	*	2426	101.8	-	-	100.85	30.64	7.16	36.85	242	31	P	V
	*	2424	93.45	-	-	92.5	30.64	7.16	36.85	242	31	A	V
		2487.1	49.06	-24.94	74	47.77	30.86	7.25	36.82	242	31	P	V
		2483.68	37.92	-16.08	54	36.63	30.86	7.25	36.82	242	31	A	V
802.11n HT40 CH 04 2427MHz		2389.95	69.36	-4.64	74	68.62	30.5	7.1	36.86	277	4	P	H
		2389.95	52.06	-1.94	54	51.32	30.5	7.1	36.86	277	4	A	H
	*	2430	108.51	-	-	107.56	30.64	7.16	36.85	277	4	P	H
	*	2428	100.32	-	-	99.37	30.64	7.16	36.85	277	4	A	H
		2483.68	53.35	-20.65	74	52.06	30.86	7.25	36.82	277	4	P	H
		2483.5	42.57	-11.43	54	41.28	30.86	7.25	36.82	277	4	A	H
		2389.95	65.74	-8.26	74	65	30.5	7.1	36.86	392	48	P	V
		2389.95	48.33	-5.67	54	47.59	30.5	7.1	36.86	392	48	A	V
	*	2430	106	-	-	105.05	30.64	7.16	36.85	392	48	P	V
	*	2430	97.34	-	-	96.39	30.64	7.16	36.85	392	48	A	V
		2484.28	50.61	-23.39	74	49.32	30.86	7.25	36.82	392	48	P	V
		2483.5	40.48	-13.52	54	39.19	30.86	7.25	36.82	392	48	A	V

802.11n HT40 CH 06 2437MHz		2389.95	66.5	-7.5	74	65.76	30.5	7.1	36.86	113	2	P	H
		2389.95	52.22	-1.78	54	51.48	30.5	7.1	36.86	113	2	A	H
	*	2440	108.55	-	-	107.49	30.71	7.19	36.84	113	2	P	H
	*	2438	100.52	-	-	99.46	30.71	7.19	36.84	113	2	A	H
		2483.56	62.03	-11.97	74	60.74	30.86	7.25	36.82	113	2	P	H
		2483.5	48.21	-5.79	54	46.92	30.86	7.25	36.82	113	2	A	H
		2389.95	55.52	-18.48	74	54.78	30.5	7.1	36.86	393	62	P	V
		2389.95	42.34	-11.66	54	41.6	30.5	7.1	36.86	393	62	A	V
	*	2434	103.58	-	-	102.63	30.64	7.16	36.85	393	62	P	V
	*	2428	95.56	-	-	94.61	30.64	7.16	36.85	393	62	A	V
		2483.62	51.49	-22.51	74	50.2	30.86	7.25	36.82	393	62	P	V
		2483.5	40.06	-13.94	54	38.77	30.86	7.25	36.82	393	62	A	V
802.11n HT40 CH 09 2452MHz		2385.01	58.99	-15.01	74	58.28	30.48	7.1	36.87	111	4	P	H
		2389.69	47.76	-6.24	54	47.02	30.5	7.1	36.86	111	4	A	H
	*	2438	106.96	-	-	105.9	30.71	7.19	36.84	111	4	P	H
	*	2442	99.15	-	-	98.09	30.71	7.19	36.84	111	4	A	H
		2483.5	68.88	-5.12	74	67.59	30.86	7.25	36.82	111	4	P	H
		2483.5	52.4	-1.6	54	51.11	30.86	7.25	36.82	111	4	A	H
		2333.14	50.87	-23.13	74	50.33	30.43	7.01	36.9	387	40	P	V
		2360.18	39.52	-14.48	54	38.87	30.46	7.07	36.88	387	40	A	V
	*	2456	103.65	-	-	102.47	30.79	7.22	36.83	387	40	P	V
	*	2454	95.05	-	-	93.87	30.79	7.22	36.83	387	40	A	V
		2483.5	63.18	-10.82	74	61.89	30.86	7.25	36.82	387	40	P	V
		2483.5	46.45	-7.55	54	45.16	30.86	7.25	36.82	387	40	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		4845	44.14	-29.86	74	64.65	34.63	10.25	65.39	300	0	P	H
		7266	45.25	-28.75	74	61.65	36.69	12.72	65.81	300	0	P	H
		4844	43.6	-30.4	74	64.11	34.63	10.25	65.39	100	0	P	V
		7260	45.13	-28.87	74	61.47	36.7	12.72	65.76	100	0	P	V
802.11n HT40 CH 04 2427MHz		4854	42.77	-31.23	74	63.24	34.66	10.27	65.4	300	0	P	H
		7275	44.63	-29.37	74	61.03	36.69	12.72	65.81	300	0	P	H
		4860	42.79	-31.21	74	63.26	34.66	10.27	65.4	100	0	P	V
		7281	43.91	-30.09	74	60.31	36.69	12.72	65.81	100	0	P	V
802.11n HT40 CH 06 2437MHz		4875	45.99	-28.01	74	66.43	34.69	10.29	65.42	300	0	P	H
		7305	49.33	-24.67	74	65.84	36.68	12.72	65.91	300	0	P	H
		9735	52.83	-25.02	77.85	66.99	37.89	14.98	67.03	300	0	P	H
		4875	44.42	-29.58	74	64.86	34.69	10.29	65.42	100	0	P	V
		7305	47.81	-26.19	74	64.32	36.68	12.72	65.91	100	0	P	V
		9735	53.42	-13.02	66.44	67.58	37.89	14.98	67.03	100	0	P	V
802.11n HT40 CH 09 2452MHz		4905	44.61	-29.39	74	64.97	34.74	10.34	65.44	300	0	P	H
		7356	45.65	-28.35	74	62.32	36.66	12.73	66.06	300	0	P	H
		4904	43.73	-30.27	74	64.11	34.74	10.32	65.44	100	0	P	V
		7350	45.43	-28.57	74	62.11	36.66	12.72	66.06	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		30	20.31	-19.69	40	26.8	25.5	0.71	32.7	-	-	P	H
		159.01	27.89	-15.61	43.5	41.53	17.29	1.92	32.85	-	-	P	H
		216.24	34.62	-11.38	46	48.17	17.31	2.24	33.1	-	-	P	H
		263.77	29.36	-16.64	46	40.31	19.62	2.48	33.05	-	-	P	H
		408.3	31.85	-14.15	46	38.69	22.86	3.08	32.78	-	-	P	H
		531.49	34.09	-11.91	46	37.86	25.38	3.52	32.67	-	-	P	H
		167.74	23.2	-20.3	43.5	37.06	17.08	1.97	32.91	-	-	P	V
		236.61	29.93	-16.07	46	42.11	18.57	2.35	33.1	-	-	P	V
		254.07	36.1	-9.9	46	47.28	19.46	2.44	33.08	-	-	P	V
		267.65	31.1	-14.9	46	41.95	19.68	2.5	33.03	-	-	P	V
		324.88	31.53	-14.47	46	40.89	20.8	2.74	32.9	-	-	P	V
		640.13	33.16	-12.84	46	36.14	25.82	3.86	32.66	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

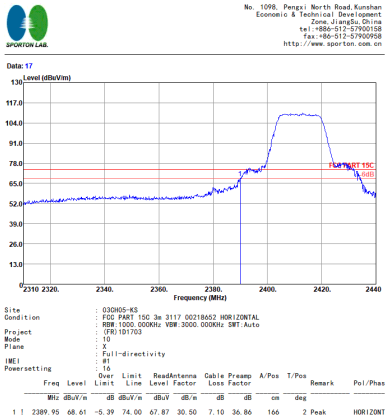
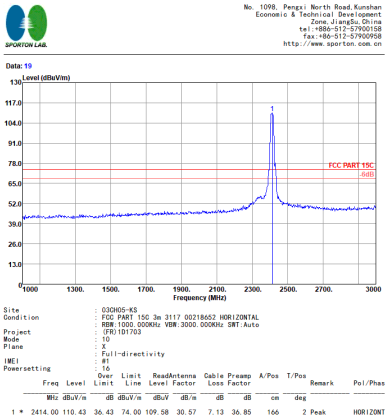
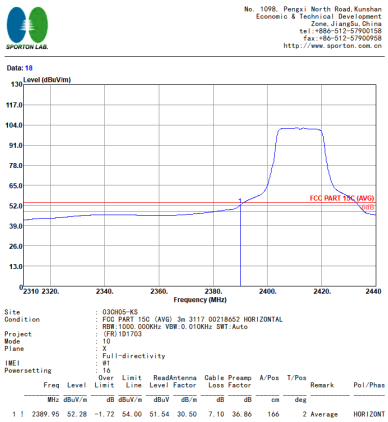
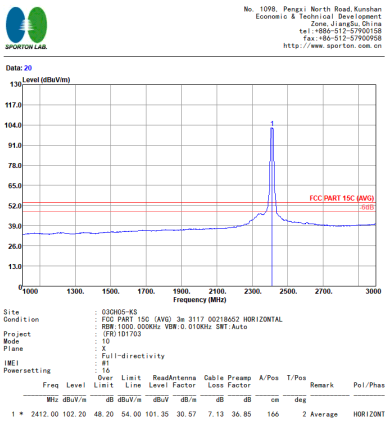
Appendix D. Radiated Spurious Emission Plots

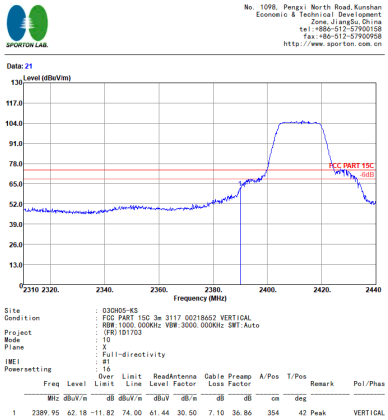
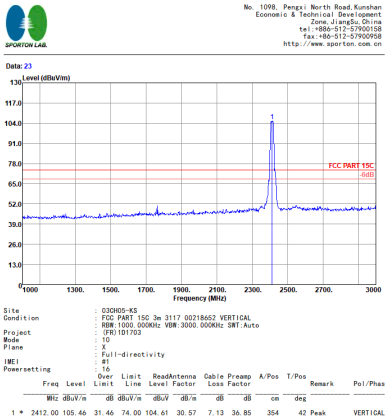
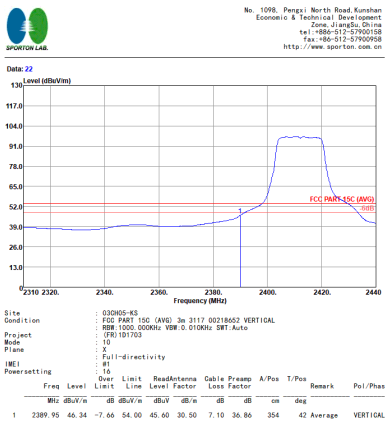
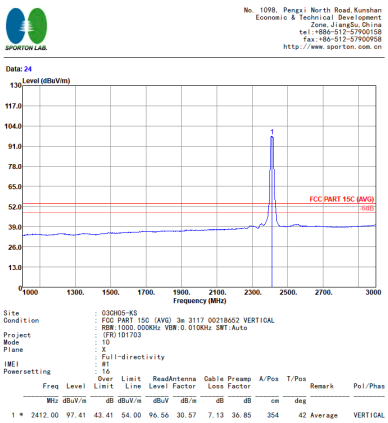
Note symbol

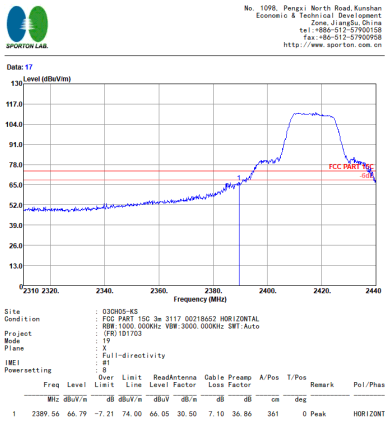
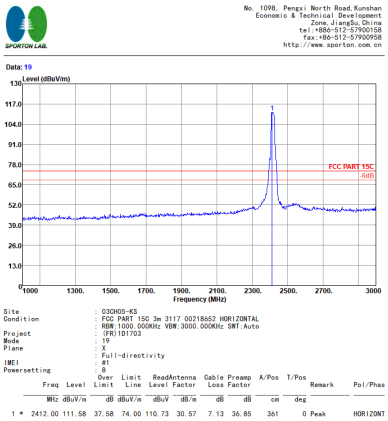
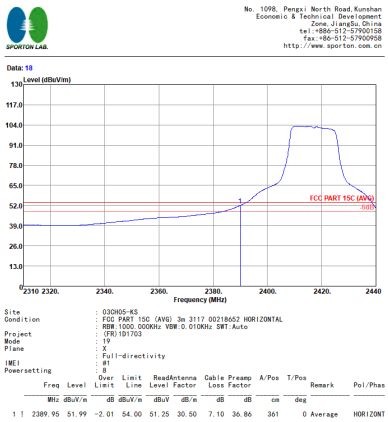
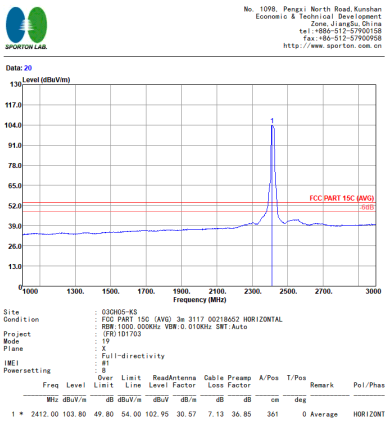
-L	**Low channel location**
-R	**High channel location**

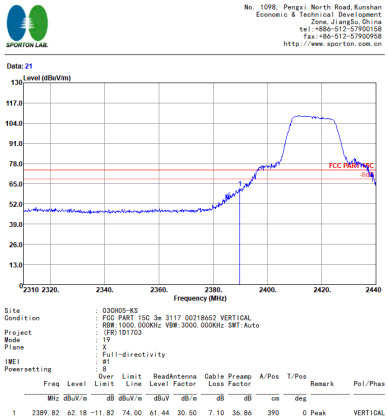
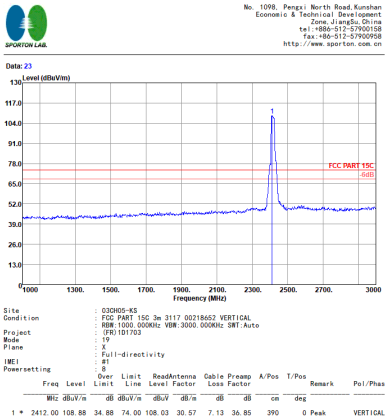
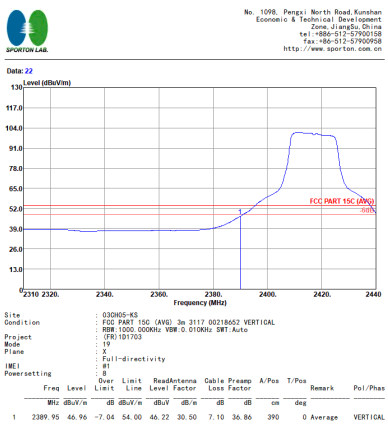
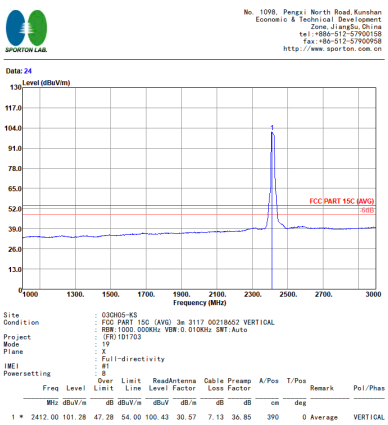
2.4GHz 2400~2483.5MHz

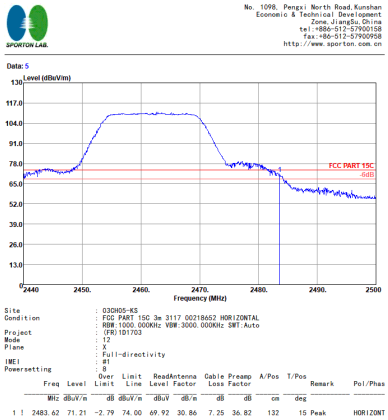
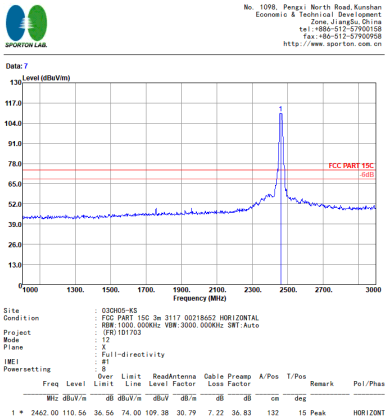
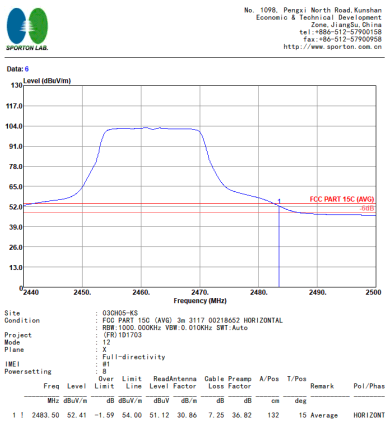
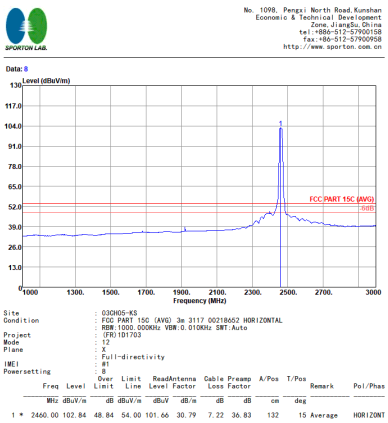
WIFI 802.11g (Band Edge @ 3m)

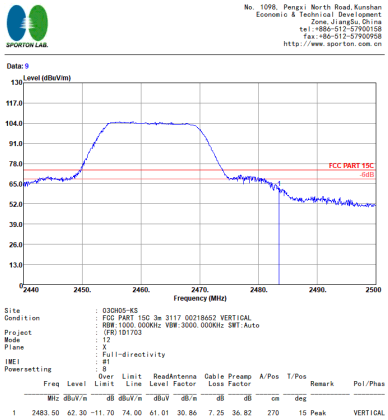
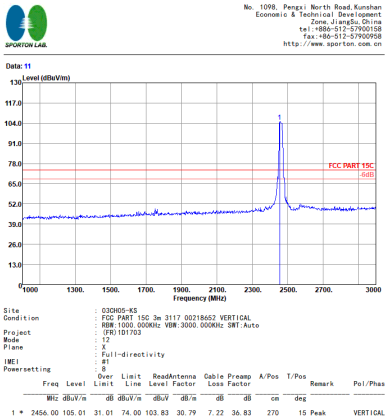
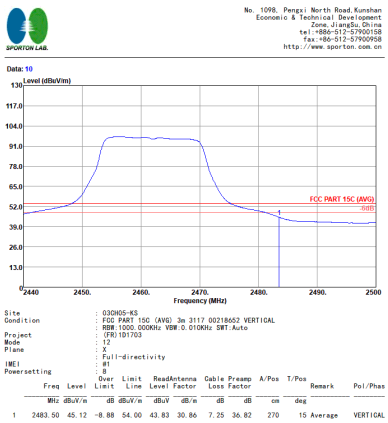
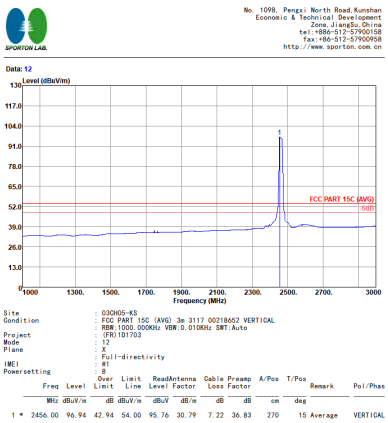
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

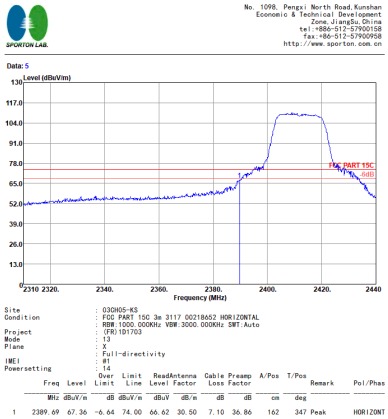
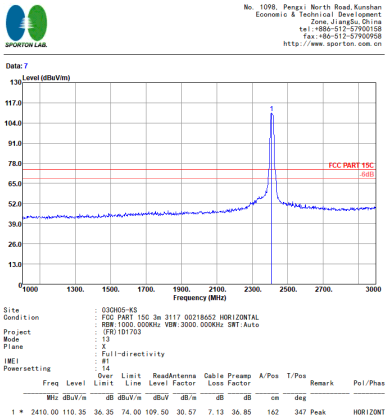
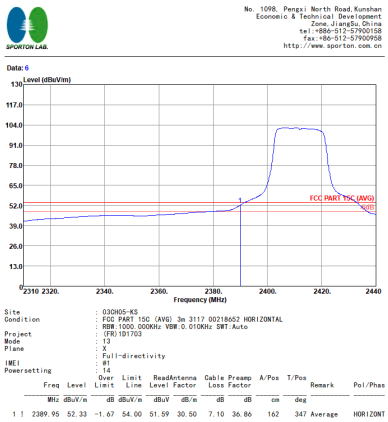
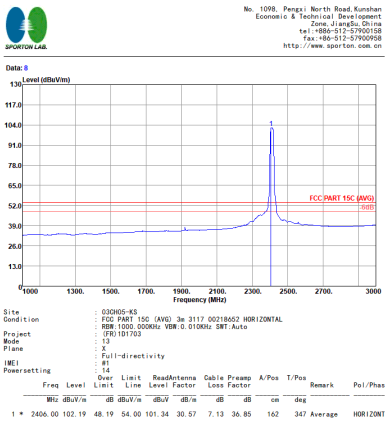
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz	
1	Vertical	Fundamental
Peak		
Avg.		

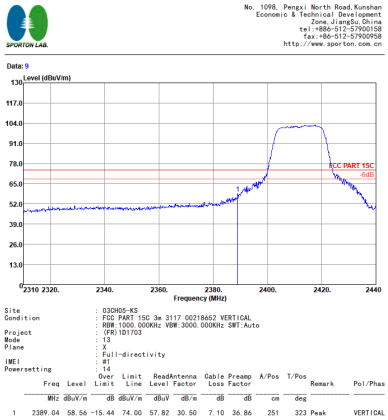
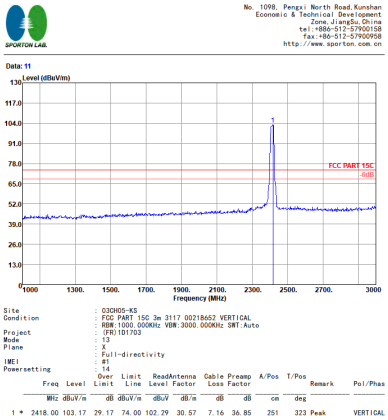
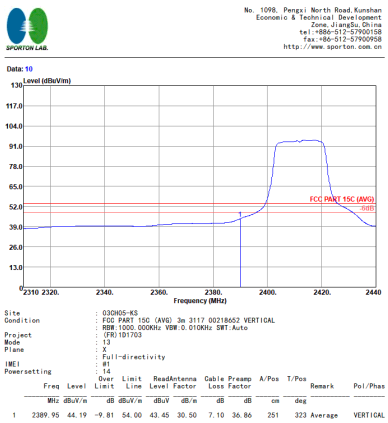
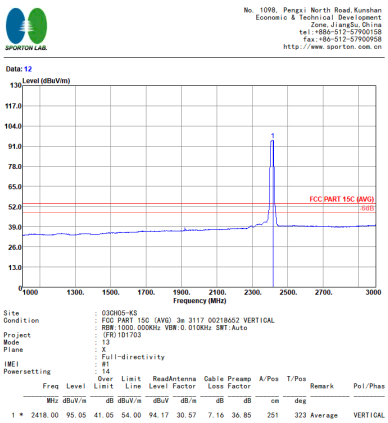
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

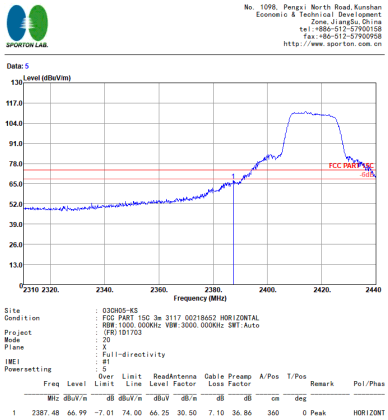
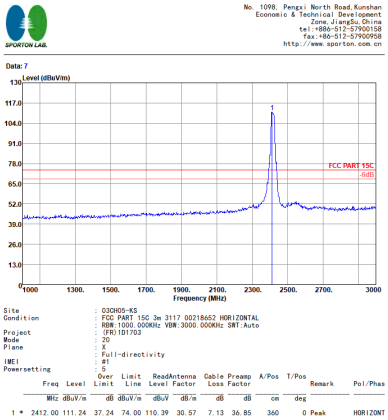
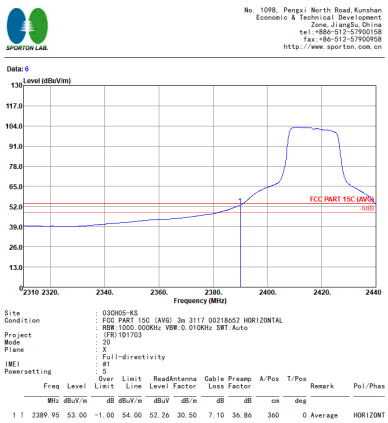
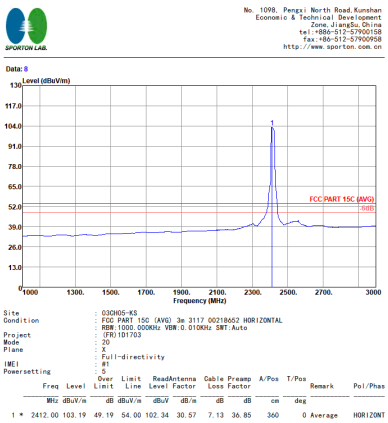
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

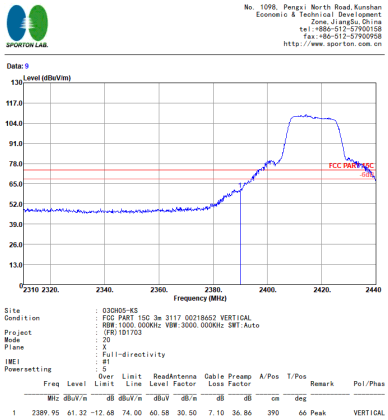
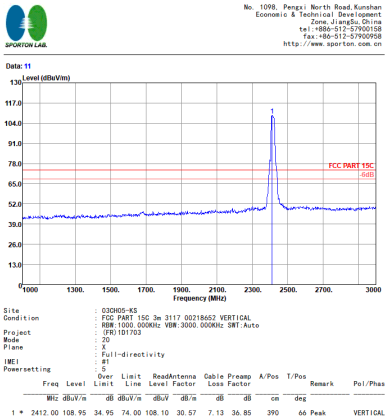
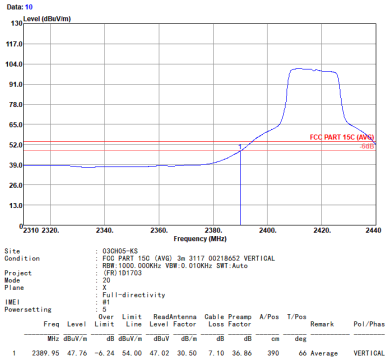
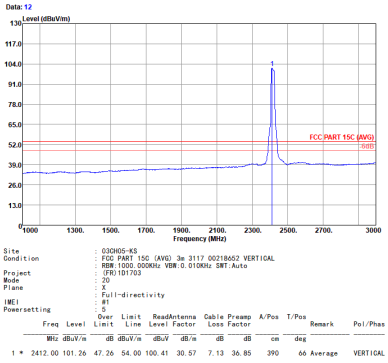
2.4GHz 2400~2483.5MHz

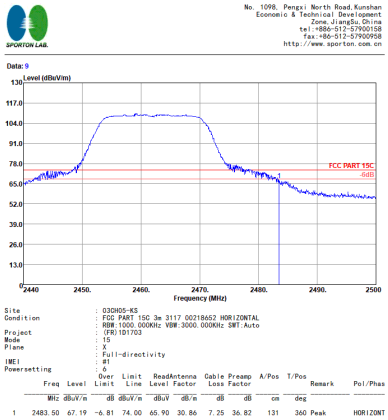
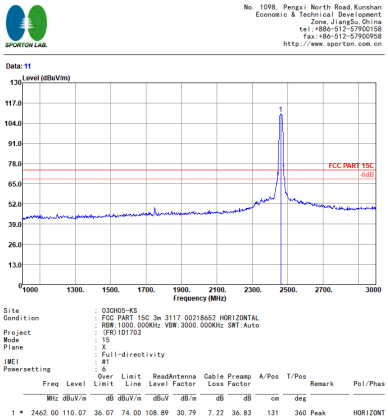
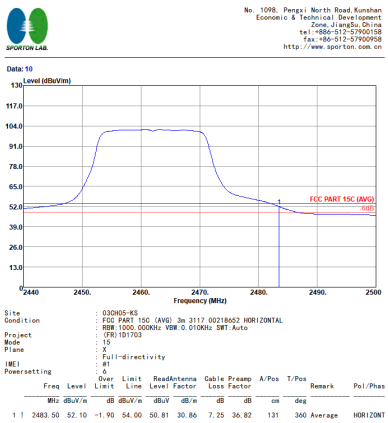
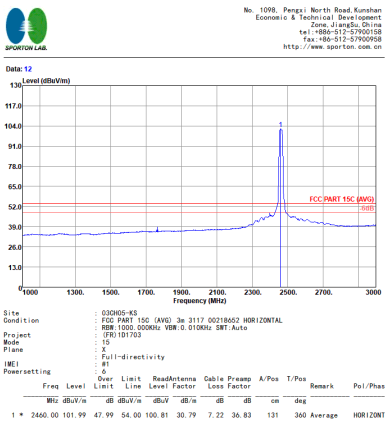
WIFI 802.11n HT20 (Band Edge @ 3m)

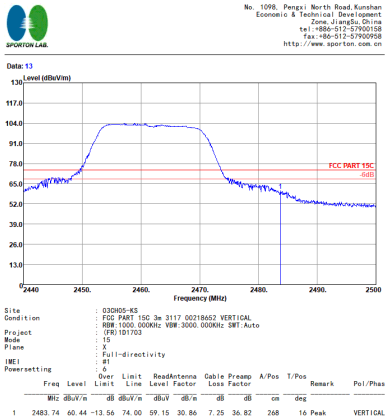
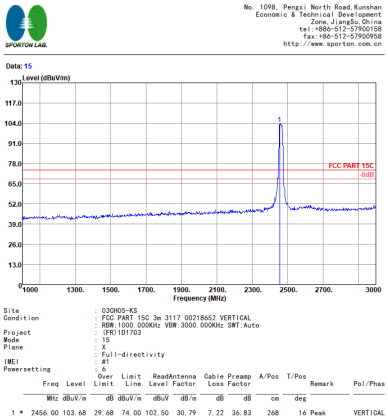
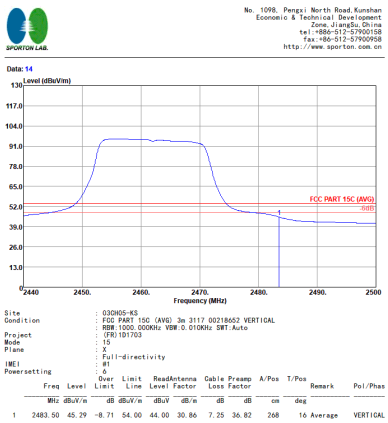
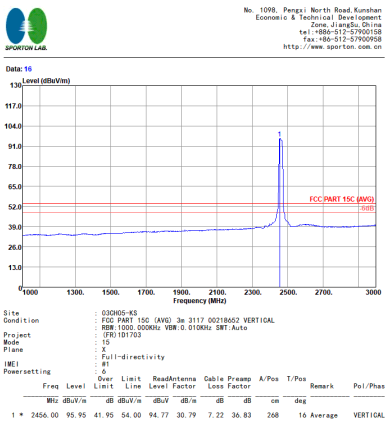
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

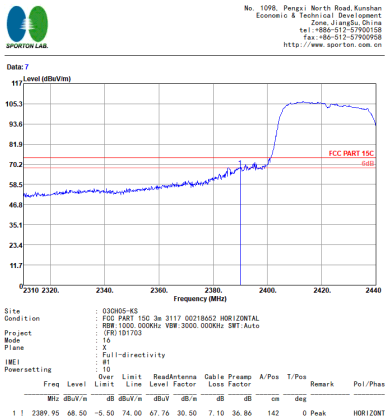
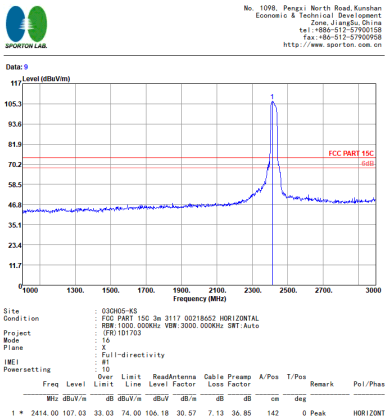
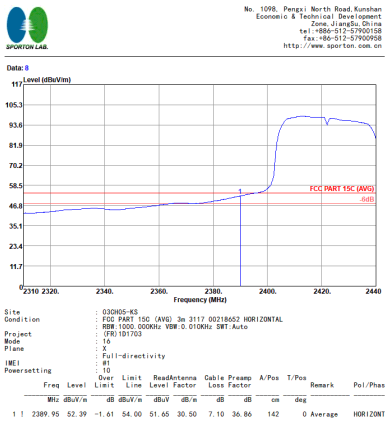
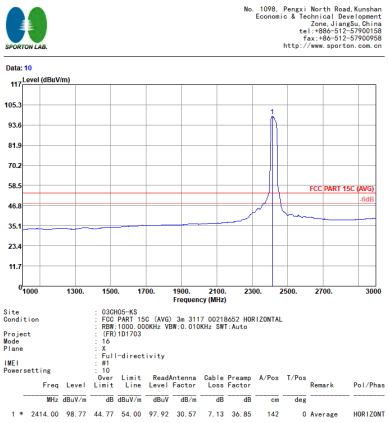
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Vertical	Fundamental
Peak	 No. 1098, Pengxi North Road,Kunshan Economic & Technical Development Zone,JiangSu,China tel:+886-512-57900158 fax:+86-512-57900958 http://www.sporton.com.cn Data: 9 Level (dBuV/m) FCC PART 15C Frequency (MHz) Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : (FR)1D1703 Mode : 20 Plane : X : Full-directivity IMEI : #1 Powersetting : 5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.95 61.32 -12.68 74.00 60.58 30.50 7.10 36.86 390 66 Peak VERTICAL	 No. 1098, Pengxi North Road,Kunshan Economic & Technical Development Zone,JiangSu,China tel:+886-512-57900158 fax:+86-512-57900958 http://www.sporton.com.cn Data: 11 Level (dBuV/m) FCC PART 15C Frequency (MHz) Site : 03CH05-KS Condition : FCC PART 15C 3m 3117 00218652 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : (FR)1D1703 Mode : 20 Plane : X : Full-directivity IMEI : #1 Powersetting : 5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 108.95 34.95 74.00 108.10 30.57 7.13 36.85 390 66 Peak VERTICAL
Avg.	 No. 1098, Pengxi North Road,Kunshan Economic & Technical Development Zone,JiangSu,China tel:+886-512-57900158 fax:+86-512-57900958 http://www.sporton.com.cn Data: 10 Level (dBuV/m) FCC PART 15C (AVG) Frequency (MHz) Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Project : (FR)1D1703 Mode : 20 Plane : X : Full-directivity IMEI : #1 Powersetting : 5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 2389.95 47.76 -6.24 54.00 47.02 30.50 7.10 36.86 390 66 Average VERTICAL	 No. 1098, Pengxi North Road,Kunshan Economic & Technical Development Zone,JiangSu,China tel:+886-512-57900158 fax:+86-512-57900958 http://www.sporton.com.cn Data: 12 Level (dBuV/m) FCC PART 15C (AVG) Frequency (MHz) Site : 03CH05-KS Condition : FCC PART 15C (AVG) 3m 3117 00218652 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Project : (FR)1D1703 Mode : 20 Plane : X : Full-directivity IMEI : #1 Powersetting : 5 Freq Level Over Limit Limit Line ReadAntenna Level Factor Cable Loss Factor Preamp Factor A/Pos T/Pos Remark Pol/Phas MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 1 * 2412.00 101.26 47.26 54.00 100.41 30.57 7.13 36.85 390 66 Average VERTICAL

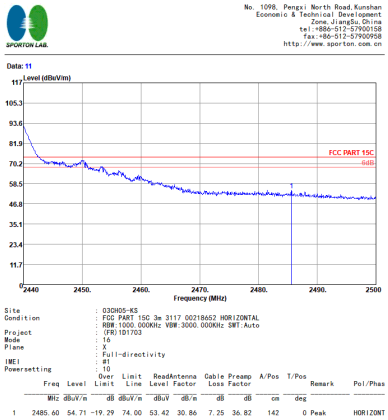
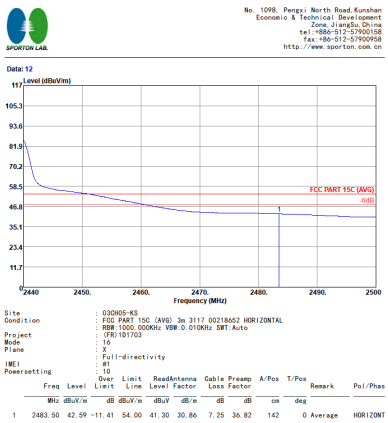
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak		
Avg.		

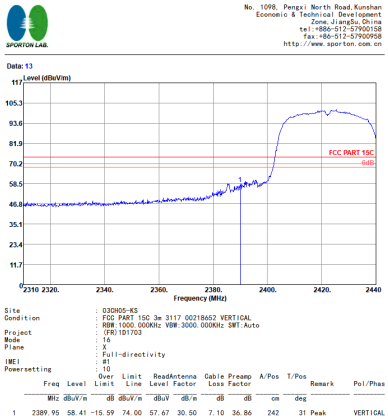
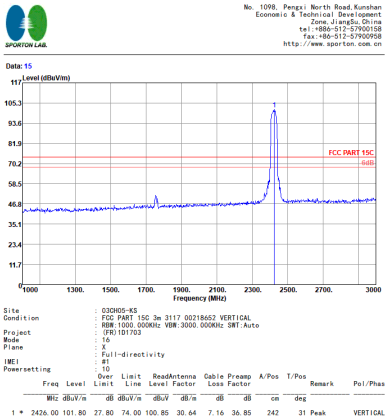
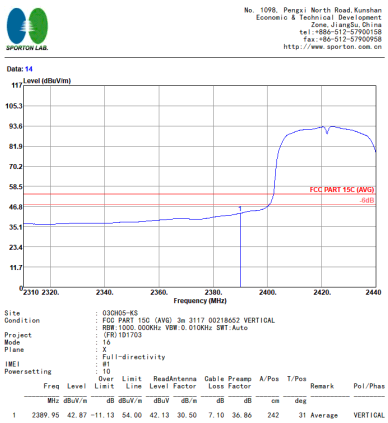
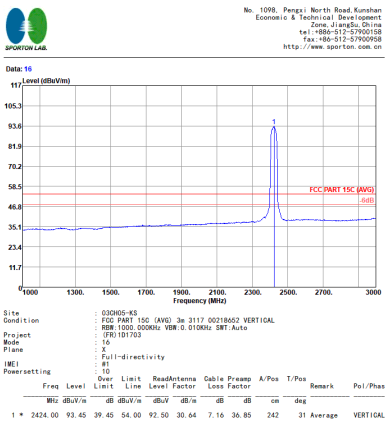
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak		
Avg.		

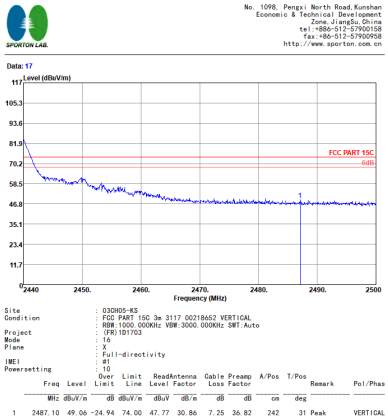
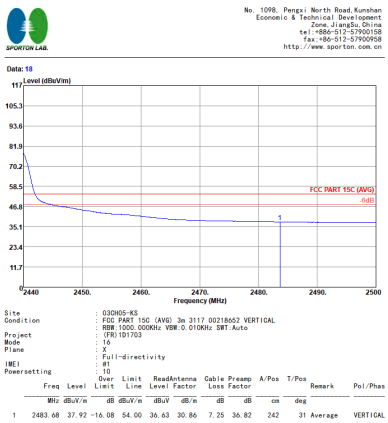
2.4GHz 2400~2483.5MHz

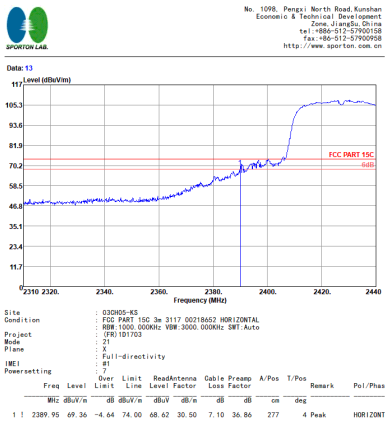
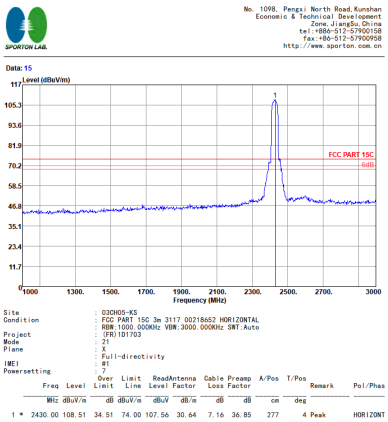
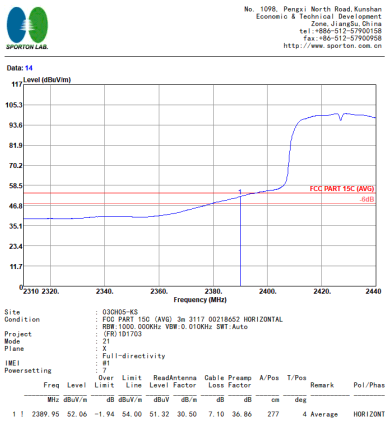
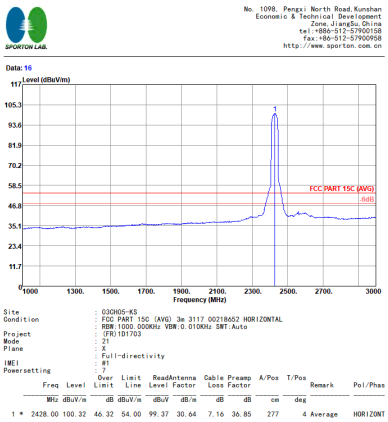
WIFI 802.11n HT40 (Band Edge @ 3m)

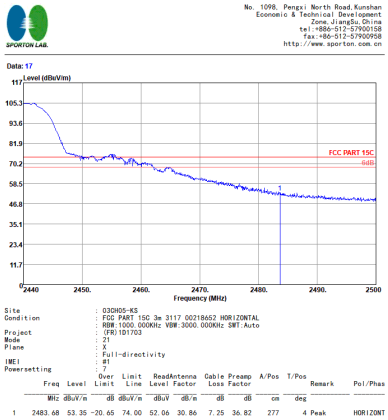
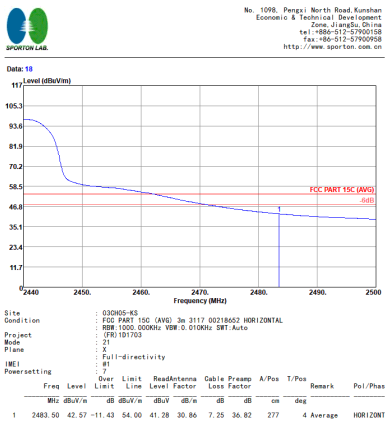
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

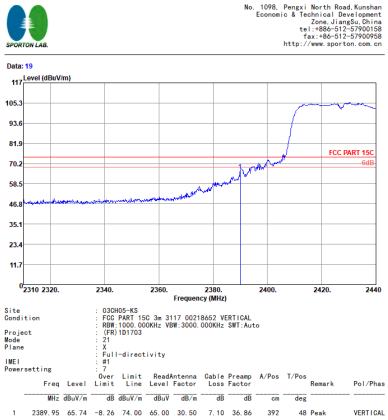
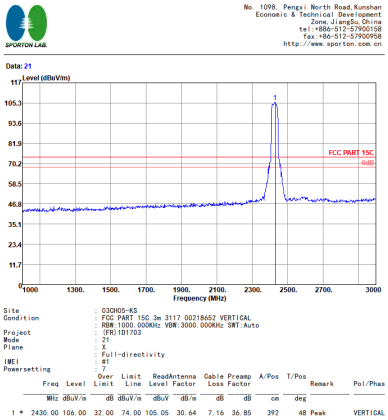
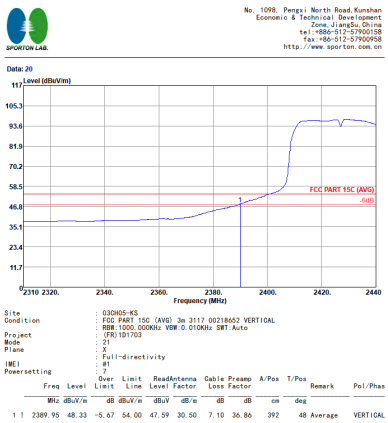
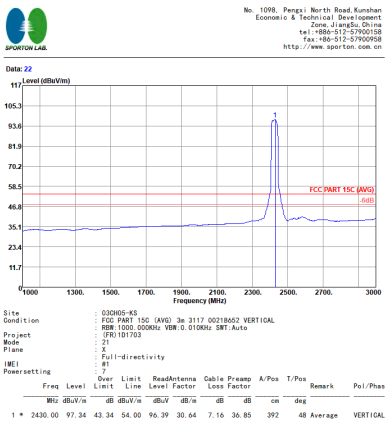
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

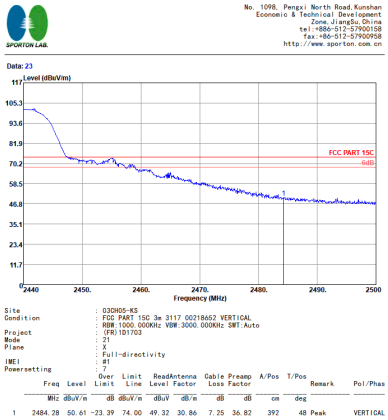
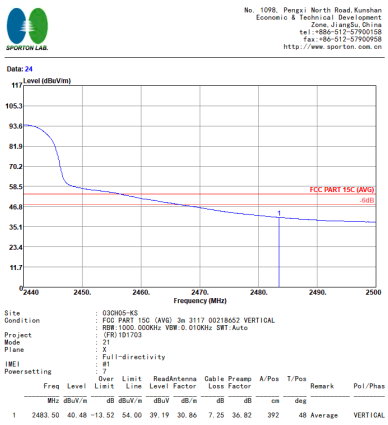
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

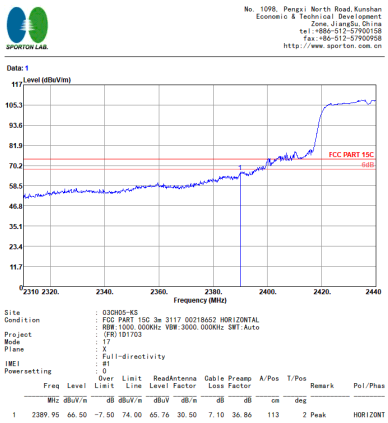
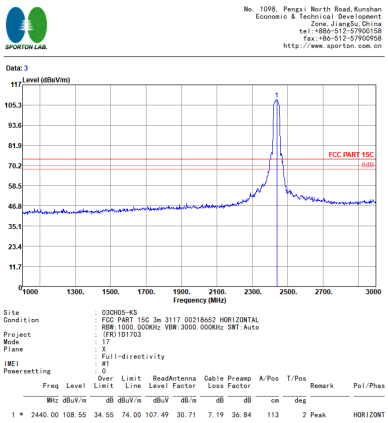
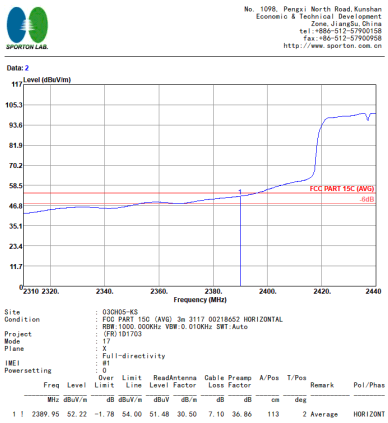
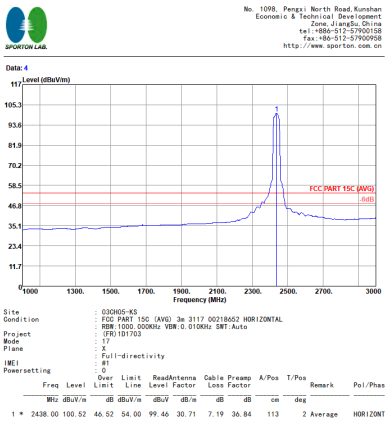
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

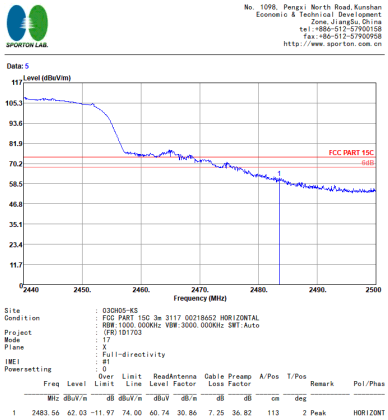
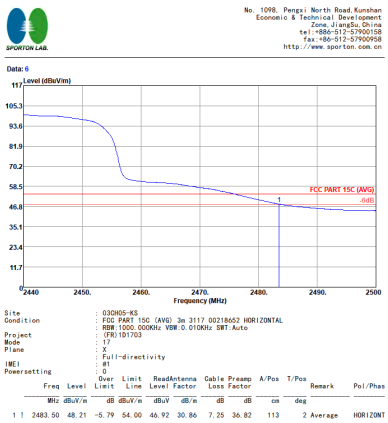
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

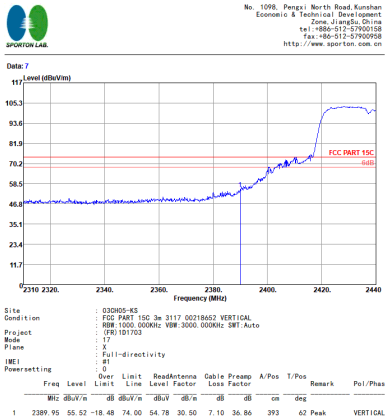
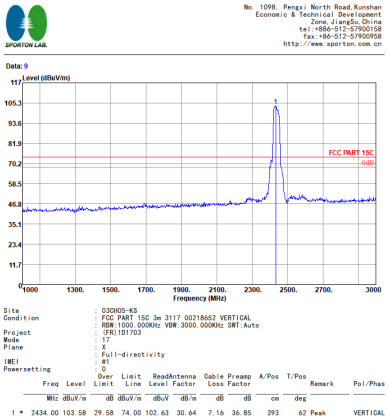
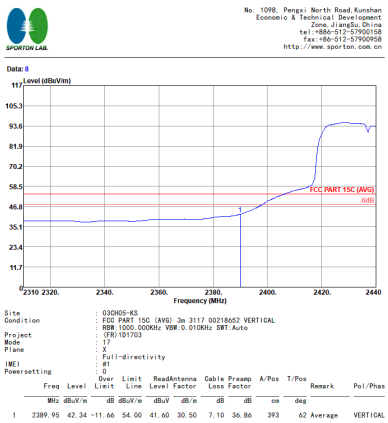
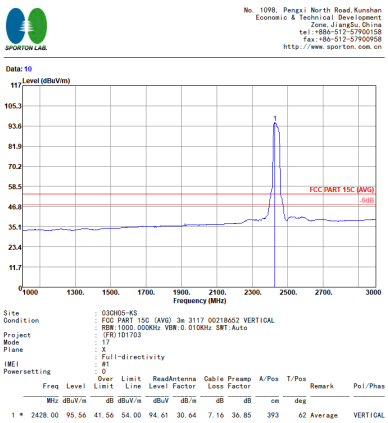
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - R	
1	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH04 2427MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
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